DISCUSSION PAPER SERIES

DP12807

FROM WELFARE TO WARFARE: NEW DEAL SPENDING AND PATRIOTISM DURING WORLD WAR II

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ECONOMIC HISTORY

ISSN 0265-8003

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Discussion Paper DP12807
Published 22 March 2018
Submitted 22 March 2018

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Abstract

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JEL Classification: N/A

Keywords: warfare, Welfare state, New Deal, World War II, volunteering, war bonds

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FROM WELFARE TO WARFARE: NEW DEAL SPENDING AND PATRIOTISM DURING WORLD WAR II

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Abstract: Why do people fight for their country? The risks are extreme, the payoff uncertain. In this paper, we argue that reciprocity is a key factor. Examining welfare spending in the US in the 1930s under the New Deal, we show that support for World War II became more common where welfare support had been more generous: war bonds were sold in greater volume, more men and women volunteered, and more soldiers performed heroic actions recognized by a medal. We use weather shocks in the form of droughts to instrument for agricultural emergency relief, and show that results hold. Because both war bond purchases and volunteering respond to welfare support, we argue that results cannot be driven by opportunity cost considerations. Data on World War I patriotic support shows that 1930s emergency spending is only predictive for World War II support. Pre-New Deal droughts are also not correlated with patriotism after 1941.

Keywords: Nationalism, Patriotism, Welfare State, Cultural Economics, New Deal, US History, World War II, Volunteering, War Bonds

JEL Classification: *D64; D74; D91; H53; H56; I38; P16; N31; N41*.

Dulce et decorum est pro patria mori.

Horace, Odes (III.2.13)

Warfare is as old as mankind. To survive, groups of humans needed the ability to defend themselves since time immemorial. Anthropologists have long highlighted the puzzling nature of "parochial altruism", the willingness to fight for one's own group (Bowles and Gintis 2004; Choi and Bowles 2007). If fighting benefits the group but is individually costly, how do groups convince their members that it is "sweet and honorable" to die for the community? In small tribes, the problem is typically solved through social pressure. In contrast, it is much harder for large, modern societies to motivate individuals to fight for the common good. The problem reached new dimensions after 1800, when army sizes expanded and warfare changed from the "game of princes" to total war — an all-encompassing effort that required complete dedication by all segments of society in order to succeed (Kennedy, 2004). As the German general Carl von Clausewitz (1832) observed: "War became the business of the people."

The rise of mass armies coincided with the coming of the social welfare state. Since the late 19th century, governments have added old age pensions, health care, and education to their primary tasks. Some of this expansion took place during wartime: governments have often made lavish promises of creating "homes fit for heroes", by expanding the welfare state after victory. A recent theoretical literature argues that the need for motivated soldiers and more manpower led to the big expansion of the welfare state, together with massive attempts by governments to spread nationalist ideology (Alesina and Reich 2013; Alesina *et al.* 2017).[1] While there are good reasons to assume that welfare states were useful in convincing citizens to fight, there is so far no systematic empirical evidence demonstrating a direct link.

In this paper, we examine empirically whether there is a strong, causal connection between welfare and warfare. We do so for the case of the United States before and during World War II. Prior to 1933, U.S. welfare spending was very limited. Under President Roosevelt's "New Deal", this changed dramatically: The Agricultural Adjustment Administration started offering grants to farmer in distress in 1933; two years later, the Social Security Act extended support to the unemployed, the elderly, and single mothers. In the same year, the President also launched the Works Progress Administration (WPA), a Federal agency which became the largest employer in the US, paying millions of men to undertake public works. For the first time in American history, the federal government became a highly visible source of everyday support for millions of citizens (Fishback *et al.*, 2005).

[1] Relatedly, some have argued that universal education was introduced because it was seen as helping a nation's military efforts (Aghion *et al.* 2016).

After the Japanese attack on Pearl Harbor, the United States entered World War II against the Axis Powers. For four years, the war absorbed a large share of the country's resources, and ordinary citizens contributed to the effort in several ways. Those who remained home financed the war with their savings, and often found employment in sectors engaged in war production. Many men and women joined the army: between 1941 and 1945 almost 17.9 million people served in one of the branches of the U.S. military, and 39% of these people did so voluntarily.[2] Although few soldiers saw active combat (Hastings, 1999), some of those who did, went on to perform heroic actions, recognized with citations and medals.

In this paper, we ask whether areas that received more support under New Deal during the 1930s supported the war effort more enthusiastically after 1941. We use three costly actions to measure commitment to the national cause. First, purchases of war bonds, which required sacrificing part of current consumption. Second, we use individual-level data on the geographical origin of volunteers. Third, we collect information on the recipients of military awards, and use it to measure the spatial distribution of war 'heroes.' These people typically performed very costly actions, well beyond the call of duty. While many factors affect heroism on the battlefield, we use them as an indicator of patriotic sentiment.

Figure 1 illustrates the basic patterns in the data. We plot county-level value of relief grants per capita (on the x-axis) against the three measures of patriotic support (on the y-axis). The left panel shows the per capita value of war bond purchases; the middle panel shows the share of volunteers among army registrants; the right panel, the number of military awards per 1,000 army registrants. For each of these measures of patriotism, the raw data reveal a strong and positive correlation with the level of New Deal support before World War II. In the empirical section we show that these correlations survive the inclusion of a rich set of controls.

Next, we focus on one specific component of the New Deal program, and present evidence that supports a causal link between welfare relief and patriotic sentiment. Starting in 1933, the Federal Agriculture Adjustment Administration (AAA) extended grants to farmers in distress. The program was one of the first and biggest New Deal projects, representing 13.5 percent of total New Deal spending. It was also highly visible among farmers, a category that was hit hard by the Great Depression. For identification, we exploit the fact that a significant portion of AAA grants were made in response to local weather shocks, especially droughts. We show that New Deal-era drought is a strong predictor of AAA payments. There is also a clear reduced form relationship between droughts and patriotism during World War II, as measured by war bond

[2] The share of volunteers was even higher during the first months of the war: by November 1942, approximately 3 million men had signed up voluntarily, corresponding to about 46% of the military strength (SSS 1943, p.16).

purchases, volunteering rates and share of army heroes. Two-stage least squares estimates confirm the existence of a strong, positive relationship between agricultural relief and patriotism.

We validate the causal interpretation of our estimates in a number of ways. First, we argue that the strong positive relationship between droughts and all three measures of patriotism is hard to explain with economic incentives. More intense droughts in the 1930s may cause worse economic conditions in the 1940s and offer reasons to leave and join the army. Even though drought-induced economic distress may explain a higher rate of volunteering, this mechanism is hard to reconcile with our two other results: the higher likelihood of becoming a war hero and especially the larger purchase of war bonds. Given the diverse nature of our measure of patriotism, we take the full set of results as strong evidence of the mechanism we propose. Second, we find no significant correlation between pre-New Deal era droughts and patriotic sentiment. While severe droughts hit different parts of the United States in the years before 1933, until the New Deal they were never met with public relief. We interpret the absence of correlation between pre-New Deal droughts and patriotic support as evidence that post-1933 weather shocks did not matter *per se*, but because they induced a public response. Third, we use recorded occupation of enlisted men to show that our results on volunteering are strongest among farmers. This result is consistent with the idea that farmers reciprocated – the public relief they received during difficult times led to greater volunteering when their nation was in peril. Finally, we collect the distribution of volunteers and war hero during World War I, and show that agricultural support did not correlate significantly with pre-existing patriotic sentiments.

A battery of robustness tests confirms the strength of our findings. First, we obtain all results when we re-estimate our regressions with entropy balancing and with nearest neighbor matching. Second, we apply Conley *et al.* (2012) methodology, and verify that our two-stages least squares estimates are robust to violations of the exclusion restriction. We find that the direct effects of post-1933 droughts on patriotism should be more than half the size of the indirect effect through welfare support. Given the near-0 correlation between pre-1933 droughts and patriotism, we believe that direct effects of this size are unlikely. Finally, we experiment with a number of alternative measures of patriotism, as well as with specifications with state fixed effects, and always find a robust, positive effect of welfare support on patriotism.

We believe that the case of the US provides an ideal testing ground for the welfare-to-warfare nexus. First, the New Deal represents the largest and most prominent example of public sector expansion in the history of the United States. It consisted of a set of programs that were explicitly intended to provide assistance to citizens in distress, a type of policy that has the potential to promote inclusion and gratitude among its beneficiaries. Second, the New Deal started almost 10 years before the United States entered World War II. This allows to measure the patriotic response to public spending at a time of extreme danger for the nation, when supporting the country was potentially very costly.

Third, World War II allows us to collect different measures of patriotic support, and show that our results hold across a wide range of indicators of patriotism. Finally, because the New Deal happened *after* World War I, we can control for pre-existing levels of patriotism. This in turn allows us to capture *changes* in patriotic support caused by the expansion of public relief measures.

Our paper speaks to the rich historical literature on the origins of nationalism. A well-established school of thought sees nation states as a product of the modern era, promoted by deliberate policies of the elites and made possible by innovations of the Industrial Revolution. Central to these theories is the idea that nation states are "imagined communities" of genetically unrelated individuals, who are induced to pledge to a common cause by the policies passed by central governments (Anderson, 2006). Among these policies, there is the creation of modern, national school systems (Hobsbawm, 1990; Weber, 1976; Gellner,1983) and the promotion of a common culture through new media such as the press (Anderson, 2004) or the national television (Hobsbawm, 1990). According to these theories, these policies were essential to develop a standardized language, a common culture and a shared set of myths and traditions (Canetti, 1962; Ranger and Hobsbawm, 1983).[3] Our results are most closely related to the work of Colley (1992) and Weber (1976) who study the role of army and war in the rise of the national identity of Britain and France.

Several economists have recently formalized some of these theories. Alesina and Reich (2013) and Acemoglu, Robinson and Torvik (2016) show how elites can exploit nationalism to establish strong, high-end states that are able to levy taxes and enforce laws. Gennaioli and Voth (2015) focus on war, and argue that external threat can lead to state formation by forcing a central government to raise taxes. Within this literature, our results speak directly to the theory of Alesina, *et al.* (2017), who suggest that states started providing public goods through a comprehensive welfare system in order to induce large armies of citizens to fight for the nation.

Our paper is part of a growing literature that analyzes empirically these theories. Miguel (2004) studies the role of education in some regions of Tanzania, where a conscious effort of nation-building through a systematic educational reform has established a national identity much stronger than in neighboring areas of Kenya. In contrast, Fouka (2016) finds that during World War I, an aggressive U.S. education policy aimed at integrating the children of German immigrants backfired: she shows that German children who were forbidden to speak their mother tongue in school were more likely to marry other Germans and call their own children with German names. Similarly, Dehdari and Gehring (2017) find that German education policies in Alsace and Lorraine at the end of 1800 made Frenchmen living there today less likely to identify with France. Bandiera *et al.* (2015) provide evidence that central governments deliberately use education systems to "build the nation," and show that during the 19th century, U.S. states with

[3] The creation of these traditions is also key to the "ethnosymbolism" theory of Smith (1991), who emphasizes the role of ethnic groups in developing these myths and traditions.

stronger needs to integrate immigrants introduced compulsory schooling earlier. The only other paper who establishes a link between war and nation building is Dell and Querubin (2016), who show that more destructive U.S. air strikes on Vietnam villages strengthened Vietnamese resistance activity during the Vietnam War, thus helping to create a stronger state.

More broadly, our paper is also related to the literature that studies the determinants of attitudes and beliefs.[4] Guiso, Sapienza, and Zingales (2016) argue that Italian cities with a historical tradition of self-governance in the Middle Ages still display more cooperative behavior, trust, and higher economic efficiency today. Nunn and Wantchekon (2011) show that the slave trade undermined trust amongst Africans; Alesina, Nunn and Giuliano (2013) demonstrate that areas with plough agriculture in the past continue to exhibit more uneven gender roles today. Alesina and Fuchs-Schündeln (2007) argue that the after-effects of living under the Socialist German Democratic Republic are still visible in attitudes today. Voigtländer and Voth (2012, 2015) show that anti-Semitism in Germany persisted at the local level over half a millennium; at the same time, Nazi schooling amplified its effects decisively at the local level.

Finally, our results on voluntary enlistment and heroic actions are related to research that has studied what motivates people to join the army and die for the nation. Campante and Yanagizawa-Drott (2015) examine the extent to which the willingness to fight for one's country is passed down the generations and Costa and Kahn (2003, 2007) study the importance of unit cohesion and of tightly-knit communities of origin. Looking at aerial combat, Ager *et al*. (2018) show that status competition led World War II German pilots to perform better when one of their peers received an award or an honorary mention.

Relative to the existing literature, we make three main contributions: First, ours is – to our knowledge – the first paper to empirically demonstrate that greater welfare provision leads to a greater willingness to fight for one's country. Second, we show how attitudes can be modified by an effective government intervention. By comparing volunteering rates in US counties during WWII with those from WWI, we derive a measure of changes in patriotism – and it is these changes that New Deal spending can explain. Third, we demonstrate how nationalism at the local level finds expression in several ways at the same time – with some individuals committing financial resources, others voluntarily putting themselves in harms' way and few performing heroic actions.

1. Historical background

a. U.S. Patriotism during the two world wars

The United States entered both World Wars late and reluctantly. In 1914, when war broke out in Europe, most Americans saw it as a distant conflict that Europeans should settle among themselves (Kennedy, 2004; Tuchman, 1957). These sentiments were clearly

[4] Bisin and Verdier (2000; 2001) develop theories explaining the emergence of culture and Shayo (2009) a model of group identity formation.

expressed in the 1915 presidential campaign, when Wilson won re-election in part by taking credit for keeping the U.S. out of the war. In 1939, American attitudes towards war were equally cool, and during the 1939 presidential election both candidates campaigned on an isolationist platform.

In both World Wars, the United States eventually joined the fighting. In January 1917, Wilson was still determined to preserve American neutrality when, in the famous Zimmermann telegram incident, Germany's Foreign Ministry promised the Mexican President territorial gains in exchange for making war on the U.S. When the British intelligence intercepted the telegram and released it to the American public, President Wilson had no choice but to declare war on Germany (Tuchman, 1957). In 1941, it was Japan that attacked Pearl Harbor, forcing the US entry into the war; Germany declared war on the US in the immediate aftermath.

After the declaration of war, both in 1917 and in 1941, patriotic sentiments quickly spread through the American society, and people showed support in a variety of ways. In this paper, we measure patriotism with three separate indicators, which signal various degrees of commitment to the national cause: the purchase of war bonds, military volunteering and heroic actions awarded a military medal. We observe volunteering and military awards for both World Wars; war bond purchases are available only for World War II. Here we briefly discuss why these measures signal local patriotic sentiments.

The Federal government issued war bonds ("Series E bonds") between May 1941 and December 1945: overall, the bonds financed about 186 billion dollars of the war debt (Department of Commerce, 1975). The first bonds appeared before the declaration of war, and were known as "defense bonds." Soon after Pearl Harbor, the Federal government began marketing bonds more aggressively, in successive "war loan drives" that appealed to the patriotic sentiments of Americans. Advertisements presented the purchase of war bonds as the only honorable alternative to direct engagement in combat. A typical ad would show pictures of soldiers in action, it would read "For Our America," "Let's *All* Fight" or "We can't all go… but we can all help!" and it would conclude with the injunction: "Buy War Bonds!" Bonds were non-transferable and they were redeemable in 40 years. The face value of the war bonds varied from $25 to $10.000, but they were sold below par at 75 cents on the dollar. With a 1940 monthly median income of about $75,[5] the cheapest war bond was worth about one third of the monthly income: buying it required forgoing current consumption, and we take it as an indicator of support for the national cause.

The second measure of patriotism is voluntary enlistment in the U.S. army: a measure that we observe in both World Wars. In 1917 and then again in 1941, the U.S. armed forces were not prepared for a major conflict on the other side of the world, and relied heavily on volunteerism in the first months of the war. Between April and June 1917 half

[5] The median yearly income of people aged 14 to 60 and classified as private or public employees was $880 (King *et al*., 2010). Income of farmers and self-employed workers is not reliable in 1940 and we exclude them from this calculation.

a million men volunteered to serve in the U.S. army, a number so large that military officials worried that it would jeopardize the war effort (Crowder, 1918).[6] Similarly, within one year from the declaration of war on Japan, approximately 3 million men had volunteered to join the U.S. military (NARA, 2002). During both conflicts, volunteering was eventually suspended, and replaced by a Selective Service System that equalized the risk of military service across districts. The Army ceased to accept volunteers on the 15th of December 1917 during World War I (Crowder, 1919, p.6) and on the 5th of December 1942 during World War II.[7] For these reasons, volunteering during the first year of the war is the best available indicator of the willingness to fight for one's nation. While not necessarily deadly, in both conflicts signing up for the Army required a man to leave his family and forgo profitable employment at home. As the economy approached full employment, such opportunities must have been more attractive than the meager pay offered by the Army, and volunteering must have appeared a relatively costly choice.

Our last measure of patriotism looks at war heroes. We identify World War II heroes with recipients of military awards. Recipients of these awards had to go well beyond the call of duty, taking initiatives that exposed them to great dangers: 37.4 percent of the heroes in our database received the award for actions that had them killed. These heroes are obviously different from the average U.S. veteran, and represent an extreme example of soldier, who is willing to risk his life for the nation. We consider the places where these heroes grew up as "patriotic counties," because they inspired them to sacrifice their lives for the nation. While none of these measures is perfect, we believe that each of them captures relevant aspects of patriotism that are informative about underlying sentiments towards the nation.

b. Emergency relief under the New Deal

Between the first and the second World War, the United States experienced the largest economic recession of the twentieth century. Under the leadership of president Franklin Delano Roosevelt, the Federal government reacted with the greatest expansion in the public sector in the history of the country. The Great Depression began in 1929, with millions of jobs lost and output declining by 33% until 1933 (Christiano *et al*., 2004). During the 1933 presidential elections, the Democratic candidate Franklin D. Roosevelt promised a "New Deal" – a set of programs that would support workers suffering from the depression and would restore economic growth. After winning the elections, Roosevelt went on to implement the largest peacetime expansion of the public sector: during the 1930s the government share in GNP more than doubled from 4 to 9 percent

[6] U.S. General Crowder, responsible of the 1917 Selective Service Draft wrote in 1918:

> If farms, factories, railroads and industries were not to be left crippled, if not ruined by the *indiscriminate volunteering* of key and pivotal men, then in the face of an enemy as Germany, the total military effectiveness of the Nation would have been lessened rather than strengthened by the assembly of 1.000.000 volunteers. (Crowder, 1918, p. 6).

[7] Franklin D. Roosevelt: "Executive Order 9279—Providing for the most effective mobilization and utilization of the national manpower and transferring the selective service system to the war manpower commission," December 5, 1942. Online by Gerhard Peters and John T. Woolley, *The American Presidency Project*. http://www.presidency.ucsb.edu/ws/?pid=60973.

(Wallis and Oates, 1998). The Federal government started a host of programs designed to support different groups of the population. In this study we focus on overall non-repayable grants issued between 1933 and 1939, which amounted to more than 16 billion dollars, and on the Agricultural Adjustment Administration grants, which transferred almost 2 billion dollars to American farmers (Fishback *et al.*, 2003).[8]

2. Data

We assemble data from a variety of sources. We proxy county-level patriotism sentiment with three variables: purchases of war bonds, military volunteering and military awards. We measure the level of New Deal financial support with county-level expenditure from every program the Federal government financed between 1933 and 1939. We identify the causal effect of one of these programs, the Agricultural Adjustment Administration, by exploiting data on the incidence of severe droughts between 1933 and 1939. Controls include World War I casualties and demographic and economic variables from the 1920, 1930 and 1940 Census.

We measure the diffusion of war bonds at the county level with the average sales per capita in 1944. We exclude sales to corporations, so that our figures only account for sales to individuals. The Treasury Department collected the data from reports of the Federal Reserve Banks. The Census Bureau published these tables in the *County Data Book* of 1947 and ICPRS digitized them in the 1970s (ICPRS, 2012).

Volunteering in the two wars comes from two separate sources. We measure World War I volunteering with data from Crowder (1918). Major General Enoch H. Crowder was responsible for the implementation of the Selective Service System of 1917. In order to make sure that the Army draft inducted men homogeneously across the country, his department collected county-level data on voluntary army enlistments to June 30, 1917 (Crowder 1918, p.15). We digitize these data, and use them to calculate World War I volunteering as the share of soldiers who volunteered from each county. We construct an equivalent measure for World War II with enlistment data from the National Archives (NARA, 2002). The National Archives used pictures of the original punch cards to digitize 9.2 million individual records of U.S. soldiers who served in the Army between 1938 and 1946. We collect the full population of records digitized, and identify volunteers and inducted men by the first digit of soldiers' serial number.[9,10] Our measure

[8] These funds do not include 10 billion dollars offered by the Federal government in loans nor 2.7 billion dollar in insurance provided by the Federal Housing Administration.

[9] From the full series of 9.2 million men, we exclude 1.77 million records of officers, of National Guardsmen or of soldiers with no information on residence before enlistment. We also drop half a million soldiers who registered in the 7th Service Command, for which the National Archive series has poor coverage (most serial numbers starting with digits "37" are missing: these serial numbers were assigned in the 7th Service Command: NARA, 2005). The 7th Service Command included the states of Colorado, Iowa, Kansas, Minnesota, Wyoming, Missouri, Nebraska, North Dakota and South Dakota.

[10] Volunteers were reserved serial numbers starting with "1", while the Army assigned to inducted men serial numbers starting with "3" (Army Regulation 615-30, 1942; see also Fouka, 2017).

of volunteering in World War II is equal to the number of men who volunteered divided by the total number of men enlisted in every county.

The sample of war medal recipients of World War II comes from the online source homeofheroes.com[11] which assembles a 15'000 pages encyclopedia on American soldiers and war medals. We collect data for military awards like the Distinguished Service Cross. This is a medal that is awarded to any person who:

> "while serving in any capacity with the U.S. Army, has distinguished himself or herself by exceptionally meritorious service to the Government in a duty of great responsibility."[12]

We normalize the number of medals and divide it by 1000 times the number of registrants in each county.

Fishback *et al.* (2003) assembled county-level data on each Federal program implemented between 1933 and 1939 from the U.S. Office of Government reports. Our two main explanatory variables are the total value of non-repayable grants and the total value of Agricultural Adjustment Administration grants, one of the largest items funded by the New Deal. We observe both measures at the county level; we normalize total expenditure by dividing it by the 1930 county population and the agricultural relief by the number of farmers in 1930. Figures for both population and farmers in 1930 come from the Federal Census (King *et al.*, 2010).

Agricultural relief was especially generous in counties that were hit by adverse weather shocks. We identify the causal effect of agricultural relief by instrumenting the Agricultural Adjustments Administration grants with the (logarithm of the) number of months with a severe drought between 1933 and 1939. We source drought data from the National Climatic Data Center of NOAA, which provides the Palmer Drought Severity Index for every month since 1900 for 376 climate divisions in the continental US. The Index ranges from -7 to 7, and drought months take index values of -3 or lower.

We use the share of soldiers killed during World War I as additional control in some regressions. We collect the full population of soldiers killed in World War I from "Soldiers of the Great War" (Haulsee, *et al.*, 1920): the publication lists the names and county of enlistment of every soldier who died in Europe during World War I. We construct the share of soldiers who died in this war as number of soldiers killed divided by number of soldiers enlisted in a county. Other demographic and economic characteristics come from the U.S. Decennial Census.

Table 1 presents summary statistics for our main variables. In the average county, people purchased war bonds worth $68 per person. The share of volunteers declined from 35% in 1917 to 17.7% in 1940-1945; in the average county 165 soldiers volunteered to fight

[11] As the US military does not hold complete records of all awards, it is hard to estimate how representative our sample is. The complete url to the website is: http://www.homeofheroes.com/
[12] http://govdocs.rutgers.edu/mil/army/r600_8_22.pdf

World War I and 498 in World War II. These figures vary significantly by county (as indicated by the large standard deviations). The average county had one war hero, 0.43 every 1000 soldiers. Figures 2 through 4 illustrate the spatial distribution of per capita war bonds purchases, volunteer rate and medals per registrants during World War II.

3. Empirical Analysis

a. War support and New Deal Welfare

In this section, we document the correlation between World War II patriotism and New Deal spending. Figure 1 displays our main result in a simple graphical way. We observe that places that received greater welfare support during the New Deal era show more determined support for their nation during World War II both at home (through war bond purchases) and on the battlefields (through volunteering and heroic awards).

We now examine the data more rigorously, and estimate the following regressions:

$$\text{WWII Support}_i = \alpha + \beta \log(\text{New Deal grants per capita})_i + \gamma X_i + SC_i + u_i \qquad (1)$$

In all regressions the units of observation are counties, indexed with *i*. WWII Support$_i$ is one of our three measures of local support for US war efforts during World War II. We provide results using the log of per capita war bonds purchases in 1944, the share of volunteers and the share of soldiers who received a medal during World War II. We are interested in the coefficient of log(New Deal grants per capita)$_i$, β, which identifies the correlation between World War II support and welfare relief received during the New Deal era. We measure welfare relief with overall New Deal spending per capita, and in some specifications we break it down between agricultural relief per farmer and other type of relief per capita. X_i is a vector of county-level controls, including the (logarithm of the) number of soldiers enlisted, the 1917 volunteering rate, the casualty rate during World War I, an indicator for whether the county was home of a World War I hero, unemployment share in 1940 and an indicator for whether a county was urban in 1930. Controlling of the volunteering in 1917 is especially important because it allows us to filter out the effect of places where patriotism was always higher before the New Deal. In the most demanding specifications, we include nine *service command* fixed effects (SC_i) to account for unobserved geographical heterogeneity.[13]

We report our main results on Table 2. We start with the easiest way to contribute to the war effort: buying war bonds. The first column of Table 2 reports a simple OLS regression of per capita 1944 war bond sales on per capita New Deal spending. We take logarithms of both variables, so the estimated coefficient is an elasticity. Our first estimate indicates that a 1 percent increase in New Deal spending is associated with a 0.49 percent increase in war bonds purchases. In column 2, we add controls and the coefficient remains unaffected in size and significance. In column 3, we add service command fixed effects, and the size of the coefficient falls but it remains highly

[13] The U.S. Army organized recruitment in continental states across nine separate *Service Commands.*

significant. In column 4, we disaggregate New Deal spending into farm support and other relief payments and find that they had effects roughly similar in size.

Next, we examine a more costly way to support the nation: volunteering for military service. Overall, 39 percent of registered men volunteered for service between 1941 and 1945. From column 5 we observe that when expenditure under the New Deal doubled, volunteering increased by 4 percent, or one fifth of the baseline volunteering rate. Emergency relief alone explains 7.5 percent of the variation in volunteering rates. In column 6, we add the usual set of controls, and the size of the coefficient falls but remains significant at the 0.1 percent level. In column 7, we add service command fixed effects: these make the size of the coefficient fall further, but it does not affect significance. Finally, in column 8, we show results for disaggregated New Deal spending and we find that both mattered.

We conclude with the most costly indicator of patriotism: heroic actions. In the last set of regressions we ask whether counties that received higher welfare support during the 1930s were home to more medal recipients. In column 9 we have no controls, and we find that a doubling of New Deal spending is associated with 0.15 more heroes every 1,000 soldiers, about one third of the baseline level of this variable. In column 10 we add controls and in column 11 the service command fixed effects: the size of the coefficients remains positive throughout and remains significant at the 0.001 percent with controls and at the 0.098 percent with service command fixed effects. In the last column we break down welfare support into agricultural and non-agricultural: here we find that the agricultural component of welfare support is still strongly associated with the presence of war heroes, while the rest of New Deal spending is not.

Before moving to a more systematic treatment of identification, we discuss one obvious concern with these results: namely, that areas that suffered more economic distress – and hence received more emergency relief – continued to be depressed in 1940. In these places, the opportunity cost to remain home may have been lower, and hence, volunteering rates higher. We believe that the full set of results in Table 2 helps to dispel this concern. First, we control for unemployment in 1940, and this has only minor impact on the point estimate of New Deal spending in column 6.[14] Second, economic distress would hardly explain why people should be willing to risk their lives in combat, as the regressions with medal recipients suggest. Finally, and most importantly, the results with war bonds purchases in columns 1 through 4 are at odds with a story based only on temporary economic incentives. Where poverty reigned, people should have found it harder to support the war effort by postponing consumption and buying war bonds. Instead, we find that the opposite is true: places that received more New Deal payments were more likely to buy war bonds. We believe that the combination of the war bonds and volunteering results are hard to explain with stories based exclusively on economic distress.

[14] Excluding only 1940 unemployment rate from regression on column 6 increases the point estimate by about 8 percent.

b. Identification

In this section, we discuss the causal interpretation of the correlations between welfare support and patriotism. The estimates in Table 2 are consistent with the idea that people who received more generous aid during the Great Depression reciprocated with greater war support during World War II. Even though areas that received greater help during the 1930s may have sent more volunteering at the beginning of the 1940s simply because they still had worse economic conditions, the results we find with different measures of patriotism are hard to reconcile with a simple story of economic incentives. However, it is still possible that unobserved characteristics, not directly related to welfare support, first attracted New Deal funds in the 1930s and then determined greater patriotic fervor in the 1940s. Additionally, it is also possible that the President or members of Congress successfully swayed New Deal funds towards those counties where there was greater patriotic support, either to reward these citizens, or to obtain electoral advantage. While controlling for World War I patriotic support never affects the estimates in Table 2, the share of volunteers in 1917 is positively correlated with New Deal spending ($\beta = 0.16$, $p < 0.01$). Additionally, Wright (1974), Wallis (1998) and Fishback *et al*. (2003) suggest that parts of Federal spending were allocated for political reasons, and indeed counties were the Democratic party performed worse between 1896 and 1928 received significantly more funds during the New Deal ($\beta = -0.01$, $p < 0.01$). Both omitted variable and strategic spending would bias the estimates in Table 2.

In order to uncover the causal relation between welfare spending and patriotic support, we need plausibly exogenous variation in the level of New Deal transfers. However, the very breadth of New Deal programs makes it hard to identify a single variable that affected public spending in the 1930s and at the same time is excluded from equation (1). To make progress, we decide to focus on a single program within the New Deal, and we concentrate on the Agricultural Adjustment Administration grants. The Agricultural Adjustment Administration accounted for 13.5 percent of all 1933-39 spending and it was designed to help agricultural workers in distress. In Table 2 we already showed that this part of the New Deal spending is positively associated with patriotic support during World War II.

Focusing on the Agricultural Adjustment Administration has several advantages. First, it was a well-defined program with a clear target population and great visibility. The Great Depression hit farmers particularly hard, and the beneficiaries of the Agricultural Adjustment program were likely to recognize the role of the Federal state in bringing relief during a difficult period. Second, the amount of agricultural relief is not correlated with World War I volunteering ($\beta = 0.01$, $p = 0.93$) nor with the share of Democratic vote before the New Deal ($\beta = 0.00$, $p = 0.33$). While it is still possible that some of the agricultural grants were allocated strategically, these correlations suggest that this was less widespread than for the rest of New Deal spending. Finally, by looking at only agricultural grant, we can exploit an instrument that is arguably excluded from equation (1): weather shocks.

During the 1930s, severe droughts hit different regions of the USA, ruining harvests and sending many farmers into bankruptcy. As a result, a great part of the agricultural grants were designed to help these farmers to weather the shock. We propose to use the presence of a drought between 1933 and 1939 as an instrument for Agricultural Adjustment Administration grants. In the next section we show how droughts that happened during the New Deal period are a strong predictor of the grant received by farmers. In order for drought to be a valid instrument they must also be exogenous and excluded from equation (1), i.e. they must affect World War II patriotism only because they affected the amount of agricultural relief received. We think this is reasonable. First, since weather shocks were out of the control of politicians, strategic allocation of drought-related relief is not a concern. Second, although extremely severe, the 1930s droughts are not the first episode of adverse weather in the history of the USA. In section 5 we show that earlier droughts that brought no Federal relief are not correlated with patriotic sentiment during World War II. This suggests that the reason why we find this correlation for the 1930s droughts is because they were met with welfare spending.

Finally, Table 3 reports correlations between droughts and other county characteristics. When we look at unconditional correlations on panel A of Table 3, we find that counties that suffered harsher droughts were significantly smaller, were less likely to be home of a World War I hero, had 0.3 percent higher unemployment in 1930 and were less likely to vote Democratic until 1928. These correlations are likely the result of droughts hitting mainly the interior of the United States: when we replicate the same regressions including 8 service command fixed effects we find that only 1930 population remains significantly smaller in counties that suffered more from New Deal-era droughts. Panel B of Table 3 reports the coefficients of regressions between pre-existing characteristics and New Deal era droughts after including service command fixed effects: the table shows that the severity of 1930s is not correlated with volunteering, casualty rate and likelihood of having a hero during World War I. Within service commands, droughts are also uncorrelated with pre-existing support for the Democratic party, urbanization and unemployment rate in 1930. The lack of correlation with observable characteristics makes us confident that within these broad geographical areas the instrument is also uncorrelated with other unobservable characteristics that may affect patriotism.

c. First stage: New Deal-era droughts and agricultural relief

We start by documenting the strong relationship between post-1933 droughts and Agricultural Adjustment Administration grants during the 1930s. The AAA programs supported farmers by either directly, by buying crops at controlled prices, or indirectly, by paying farmers to reduce cultivated acres.[15] Because many of these interventions were designed in response to adverse weather shocks, we expect these shocks to predict the amount of agricultural relief grants extended to different counties. We focus on one specific weather shock that repeatedly affected American farmers in the 1930s: droughts. Figure 5 displays the unconditional relationship between droughts and agricultural grants:

[15] The purpose of acreage reduction was to reduce output and thereby increase prices (Libecap, 1997).

we plot the log number of months with severe droughts between 1933 and 1939 on the horizontal axis and the log of the agricultural grants per farmer on the vertical axis. The graph reveals the strong correlation between these two variables, and confirms that an important part of the agricultural emergency funds were allocated in response to exogenous weather shocks.

Next, we verify that the relationship survives more demanding specifications. We estimate variations of the following equation:

$$\log(\text{AAA grant per farmer})_i = \theta + \delta \log(\#\text{ droughts months})_i + \xi X_i + SC_i + u_i \qquad (2)$$

The dependent variable in equation (2) is the log value of Agricultural Adjustment Administration grants per farmer. The main explanatory variable is our excluded instrument: the log of the number of months in which county *i* experienced a severe drought between 1933 and 1939. We will control for the usual set of county-level characteristics X_i and in the most demanding specification we include a set of service command fixed effects SC_i.

Table 4 reports first stage estimates. In the first column we show the unconditional correlation between AAA grants and New Deal-era droughts: the coefficient of the instrument is positive and highly significant, with an *F*-statistic well above the rule-of-the-thumb value of 10. In the second column we add all other county-level controls: the coefficient of the weather shock drops by 6 percent, but significance remains below 0.1 percent and the *F* well above 10. Finally, in column 3 we report the estimates of a regression that includes service command fixed effect. The coefficient of our instrument drops further, but in this specification the *F* is equal to 252. The estimates on Table 4 indicate that a 1 percent increase in the number of months with drought lead to an increase in agricultural grants that is between 0.5 and 0.7 percent. This appears a sizeable effect.

Overall, these results confirm that weather shock are a strong instrument for agricultural relief. Moreover, the results with service command fixed effects confirm that even within homogeneous regions, differential impact of weather shocks created significant differences in agricultural relief. This is important because in Table 3 we showed that within the same regions pre-existing characteristics are not significantly correlated with post-1933 droughts. Thus, the combined results of Table 3 and 4 suggest that, conditional on service command fixed effects, New Deal-era droughts are both excluded from the structural equation (1) and a strong instrument for our endogenous variable.

d. Reduced form: New Deal-era droughts and war support

Next, we turn to the direct relationship between New Deal-era droughts and our measure of World War II support. We begin by showing the basic patterns in the data in a graphical way. In the three panels of Figure 6, we plot our drought instrument on the horizontal axis and our measures of World War II support on the vertical axes. On the left panel we look at per capita war bond purchases, and find a strong positive correlation

between this variable and New Deal-era droughts. In the central panel we look at World War II volunteering rate: also this variable displays a strong positive correlation with the droughts. Finally, on the right panel we examine the share of war hero among U.S. soldiers: once more, we find a strong and positive relationship between these variables.

We next perform a formal analysis of these relationships and estimate the equations:

$$\text{WWII Support}_i = \pi + \rho \log(\#\text{ droughts months})_i + \zeta X_i + SC_i + u_i \qquad (3)$$

In equation (3) WWII Support is one of our three county-level measure of war support, and we are interested in the coefficient of our instrument, ρ. We report our results on Table 5. We start on columns 1-3 with per capita war bond purchases. On column 1 we report the unconditional correlation, on column 2 we add all county-level controls and on column 3 we add the service commands fixed effects. The coefficient of post-1933 droughts is positive and significant at the 1 percent level across all specifications, indicating that counties that were hit by more severe droughts spent more in war bonds during World War II. The next three columns of Table 5 turn to volunteering rate, and report estimates of regressions with no controls (column 4), with county-level controls (column 5) and with controls and service command fixed effects (column 6). Across all specifications, droughts between 1933 and 1939 are a strong predictor of World War II volunteering, with *p*-value always below 1 percent. Finally, the last three columns of Table 5 look at the number recipients of military awards per 1000 soldiers. Also for this measure of patriotism we find a strong and positive correlation with droughts: counties that experienced harsher droughts during the 1930s were more likely to be home of World War II heroes.

Overall, the results in Table 5 reveal a strong and positive correlations of post-1933 droughts and each of our three measures of patriotism. Because weather shocks are exogenous, the coefficients on Table 5 identify the causal effect of droughts on the different indicators of World War II support. Under the additional assumption that post-1933 droughts affected World War II patriotism *only* because they induced the Federal government to extend welfare support to farmers, then instrumenting agricultural relief with droughts identifies the causal effect of welfare relief on war support. Overall, we believe that the full set of results shown on Table 5 provides strong support for the idea that farmers reciprocated the relief received during the New Deal by supporting the war effort more enthusiastically.

e. Two-stages least squares estimates

We discuss here our two-stage least square results. In section 4.a we have shown that World War II support correlates strongly with overall New Deal spending as well as with the part of the Agricultural Adjustment Administration grants. In this section, we estimate a variation of equation (1), where we substitute per capita New Deal spending with agricultural relief per farmer:

$$\text{WWII Support}_i = \alpha + \beta \log(\text{AAA grant per farmer})_i + \gamma X_i + SC_i + u_i \qquad (4)$$

Because we believe that agricultural grants may be endogenous in equation (4) we instrument it with the log number of months with severe droughts between 1933 and 1939. Since droughts are exogenous and unlikely to affect patriotic sentiment directly, the two-stage least square estimates identify the causal effect of agricultural relief on World War II support.

Table 6 reports our results. In columns 1 through 3 we show the estimates of equation (4) when the dependent variable is the per capita war bond purchases: in column 1 we have no controls, on column 2 we include county-level controls and on column 3 we add the service command fixed effects. Across all specifications, we find that greater agricultural relief during the 1930s was met with higher World War II bond purchases. The coefficients always significant at less than 1 percent and they are stable across specifications. The estimate on column 3 implies an elasticity of war bond purchases to agricultural grants of about 0.46.

In column 4 to 6 we look at volunteering shares. New Deal agricultural relief is positively and significantly correlated with this measure of patriotism too: all coefficients are significant at conventional levels and they remain stable when we add county-level controls (on column 5) and service command fixed effects (on column 6). The coefficient on column 6 implies that one standard deviation of per farmer agricultural grants (1.14) leads to an increase in the volunteer share of 0.04, which is equivalent to 53 percent of the standard deviation of the dependent variable – a sizeable effect.

Finally, on column 7 through 9 we report the estimates of the regression with the number of war heroes per 1000 registrants as dependent variable. As for the other outcomes, we present specifications without controls (on column 7) with county-level controls (on column 8) and with service command fixed effects (on column 9). Across all these specifications, we find a consistently positive effect of New Deal agricultural relief on the share of World War II soldiers that earned a medal. The point estimates are always significant at less than 0.01 percent, and very stable. The coefficient on column 9 implies that a one standard deviation in agricultural grants led to 1 more war medal every 4000 soldiers, which is equivalent to 37 percent of a standard deviation of the dependent variable.

Overall, the results shown this section offer strong support to a causal interpretation of the link between welfare expansion and war support for the case under exam.

4. Robustness

a. Placebos

In this section, we use placebo tests to tackle three concerns. First of all, we use droughts before the New Deal to show that direct effects of our instrument on patriotism are unlikely to be of great concern. Secondly, we test whether welfare was simply allocated to *already* more patriotic areas in the first place and finally, we investigate whether the

observed treatment effect is actually driven by the treated by comparing the effect of agricultural spending across different professions.

Our identification strategy hinges on the assumption that severe droughts in the US were an important determinant of relief spending during the New Deal, influencing volunteering from December 1941 onwards. This in turn implies that droughts before 1933 should have no effect on patriotism after 1941 – because the government did not step in to help on any significant scale. Figure 7 shows when severe droughts hit the US. We use the drought months from 1933-39 for our IV, but there were severe droughts before 1933. In particular, in 1931, there was significant agricultural distress due to drought conditions in the mid-Western US (Figure 7). We use the pre-1933 droughts as placebos.

If heavy droughts have a direct effect on patriotism after 1941, we should expect similar reduced form results for the drought in 1931 and 1934. Figure 8a-c shows that this is not the case. While the (pre-New Deal) drought in 1931 has a negative and significant impact on volunteering, the similarly strong drought in 1934 shows the opposite effect. This suggests that potential direct effects of drought (at most) introduce a downward bias in our IV regression and cannot account for the positive effect of spending on volunteering. Note as well that all pre-New Deal coefficients are non-positive while all New Deal coefficients show strong and positive effects.[16]

If direct effects do not introduce a bias into our results, perhaps agricultural (and other forms) of government support went more readily to more patriotic areas because they were better connected to Washington? We examine this empirically by plotting 1917 volunteering against agricultural support in the 1930s (Figure 6).

There is no statistically significant relationship between farm relief in the 1930s and volunteering in 1917 (p-value 0.56), and the sign is negative. This suggests that pre-existing differences in local sentiment towards the nation are not correlated with income support for farmers during the 1930s.

b. Channel

Finally, one potential interpretation of the ols results is that government intervention can win hearts and minds. It seems intuitive to expect the largest reaction to this intervention among the people who actually benefited of the New Deal to the greatest extent. However, using our aggregate results so far, we cannot tell who is driving the surge in patriotic action in high welfare counties.

To investigate this question, we exploit that the WW2 enlistment data gives us the civilian occupation of each draftee and volunteer. Using Dictionary of Occupational Title

[16] The fact that 1933 has no positive effect should not discourage us for two reasons. First of all, drought in 1933 was of small magnitude (Figure 7). Secondly, despite the impressive speed of Roosevelt's legislation efforts, it takes time for an administration to set up a functioning welfare program (Figure 8a-c).

codes, we cluster all occupations into groups[17] and further construct for each profession x two variables in county i.

$$Share - Vol_{x,i} = \frac{\#\left(Volunteer \cap I(Profession = x)\right)_i}{\#Volunteer_i}$$

$$Share - Draft_{x,i} = \frac{\#\left(Draftee \cap I(Profession = x)\right)_i}{\#Registrants_i}$$

$Share - Vol_{Farmer,i}$ hences gives the share of volunteering farmers over all volunteers in county i. Counties with high values of this variable hence have unusually many farmers among their volunteers. To make sure that this is not simply driven by agricultural counties having more farmers, we construct the variable $Share - Draft_{Farmer,i}$ as well which measures the share of drafted farmers over all draftees. As the draftees were selected at random by a lottery, the professional composition of draftees in a county gives us a representative estimate of the labour market composition as a whole.

Table 7 presents the baseline regression results. We regress agricultural and non-agricultural welfare spending on the share of farmers among volunteers and find that farmers make up a larger than usual shares of volunteers in places with high agricultural spending. By controlling for the share of farmers among draftees (Columns 2-4) and alternatively for farmers per capita in 1940 (Column 5), we rule out that the number of farmers in a county make this result purely mechanical.

The next step is to see how farmers reacted to non-agricultural spending. Columns 6-10 find a negative correlation between non-agricultural spending and the share of farmers among volunteers. There was hence a substitution away from farmer volunteers in places where welfare did not target them. A potential explanation for this would be that welfare was provided to different people and different people henceforth reacted to it.

Figure 9 analyses this idea more systematically. It shows the point estimates of regressing (non-) agricultural welfare spending on the share of each occupation group among volunteers.[18] This provides us with another placebo. If our hypothesis holds that only welfare recipients show reactions to welfare spending, we expect a substitution away from other professions towards farmers in high-welfare spending counties. Equivalently, counties with high non-agricultural spending helped a completely different set of people back on their feet – likely lower-skilled – and we would expect fewer farmers and more lower-skilled occupations to display more patriotism. This is exactly what we find:

[17] Occupation codes range from 0-999. Professionals (0-100), clerks (101-199), service jobs (200-299), agriculture jobs (300-399), manufacturing jobs (400-499), skilled (500-699), semi-skilled (700-799) and unskilled jobs (800-999).

[18] All specifications control for the share of draftees of the respective occupation.

agricultural spending wins exclusively the hearts and minds of farmers. Non-agricultural spending wins the hearts and minds of lower-skilled workers.

We do not believe that the heterogeneous effect of welfare across professions can be explained by an economic shock that had a similarly heterogenous effect across occupations. This is because in general equilibrium the economic opportunities of all workers should be hit by the adverse effects of the drought.

c. Instrument validity

To examine the robustness of our instrumental variable strategy, we implement the procedure described by Conley *et al*. (2012). If the exogeneity assumption was violated, how strong would the direct effect of drought on volunteering have to be before the link from relief to volunteering becomes insignificant? Conley *et al*. (2012) develop a method that allows to answer this question, by specifying a distribution of the direct effect of the instrument on the outcome variable.

We implement their union of confidence intervals approach. In our baseline, without any controls, we find a coefficient (t-statistic) of 0.059 (13.43) for relief per farmer, using log months of drought in the New Deal era as the instrument. If we allow for a direct effect of drought, then, to be greater than zero (at 95% confidence) the coefficient for the direct effect should not be greater than 0.032 – or more than half of the indirect effect. We consider this to be unlikely – and all the more so since areas with above-average farm relief during the 1930s have, by 1940, lower unemployment on average than the rest of the country.

d. Balancedness

The overall balancedness of our sample is less than perfect. Areas with more relief are on average less populous; they had fewer World War I deaths; unemployment in 1930 was higher than in the rest of the country, while the opposite was true for 1940. To strengthen the validity of our ols results, we use two methods to deal with the lack of balance – entropy balancing and matching.

Entropy balancing

Hainmueller (2012) introduced a method of changing weights so as to mechanically balance a dataset based on observable covariate characteristics. We implement his method by balancing on our standard set of controls we use in all regressions[19] to preserve consistency and account for various dimensions of imbalances. The effect we aim to identify is the average treatment effect of receiving more grants per capita than the median county while re-balancing the treatment (above median welfare) and control

[19] Share of volunteers and casualties in WW1, a dummy for whether a county had at least one medal recipient in WW1, the log number of registrants in WW2, the unemployment share in 1940, a dummy for whether a county had urban population in 1930 and the average share of Democrat votes from 1896 to 1928.

group (below median welfare) in a way to make them as similar as possible. Table A1 shows that entropy balancing succeeds in rebalancing the sample.

Figures 10a-c plot the results of the baseline sample and the entropy-balanced sample side-by-side for all of our three outcomes. We can see that the coefficients are only once significantly different from each other and always positive and significant.

Matching

An alternative approach uses nearest-neighbor matching to increase the similarity of observations that we implicitly compare. We implement the procedure by Abadie *et al*. (2004). In Table A2, we use 3, 8, and 12 nearest-neighbor matches[20] and investigate the average treatment effect of being an "above median welfare recipient". Columns 1-3 of Table A1 only use latitude, longitude and log population in 1940 to match counties and find positive and significant results if we use more than 3 neighbors for comparison for both bonds and volunteering.

If we aim to compare counties with similar population size but disregard geographical location, we also get a positive and significant effect for medals (columns 4-6). As we have to assume that counties differ by more than their population, columns 7-9 also use the standard set of controls (compare footnote 19) as additional matching variables. This setup hence now only compares counties that are similar on many relevant dimensions and find that above median welfare counties were consistently more patriotic in WW2 (although the effect on medals is not signficiant).

e. Alternative specificationsIn this section, we show that our results are robust to alternative measures of volunteering. These results mitigate two separate concerns: one about measurement error and one about strategic volunteering. Our dependent variable may have measurement error because the National Archive could not digitize punch cards recorded on microfilms that in 2002 were of poor quality or were lost. As a result, the series of men who were inducted in the Army has relevant gaps,[21] and this may introduce measurement error when we divide volunteers by the sum of volunteers and inducted men. On the other hand, volunteering could be strategic because it was open even to men who were inducted through the Selective Service System. To these people, volunteering was attractive because it allowed to choose at least the branch of the Army where they would serve.

To show that the measurement error is not correlated with our explanatory variables, we replicate our analysis with two volunteering measures that are not affected by the missing data. To address concerns about strategic volunteering we show results with the share of volunteers in 1942, when volunteer numbers surged in response to the Pearl Harbor attack, and men were signing up for war arguably more as an emotional reaction than for long-term calculations.

[20] 8 is the average number of neighboring counties in the US.

[21] Using the list of missing numbers provided by the National Archives, we estimate that around 35% of records are missing in the inducted men series, against 15% in the volunteer series.

We construct the first alternative measure of volunteering as the number of volunteers from a county divided by its population, as recorded in the 1940 Census. Because both volunteers and population are measured precisely, we do not expect the measurement error to be serious in this variable. The second measure is the logarithm of the number of volunteers in each county: when we use this as dependent variable we are careful to control for the logarithm of the total 1940 population to account for differences in county size. We present our basic correlation results in Table A3. In the first 4 columns we report estimates when the dependent variable is volunteers per 1000 inhabitants. In the following 4 columns the dependent variable is the logarithm of the number of volunteers.

In all specifications the coefficients of interest remain positive and significant at the 1 percent level: New Deal spending is positively correlated with both alternative measures of volunteering. Moreover each separate component of New Deal spending remains positively and significantly correlated with the alternative measures of volunteering. Additionally, 1933-1939 droughts predict higher volunteering, and when used to instrument agricultural relief we estimate a positive and highly significant effect of welfare support on volunteering.

Columns 9 through 12 of Table A3 replicate the analysis using 1942 volunteers as a share of all men who served during the war. When we focus our attention to volunteers with less strategic motives, the correlation with New Deal spending remains significant and larger in size than our baseline. Similarly, the size of the coefficients in both the reduced form and the two-stages least squares shown in Tables A4 and A5 is always larger than the corresponding coefficients in our baseline specification. This suggests that if anything, our results becomes stronger when we measure patriotism with a measure that arguably better captures patriotic sentiment.

We conclude this section by presenting a set of regressions that control for state fixed effects. While recruiting was organized at the level of "service commands," a geographical division that organized different states together, it is possible that state-level unobservable characteristics affected both patriotism and New Deal relief. We show that such unobservable characteristics are unlikely to have a significant effect on our results in Table A6. In the first 3 columns we report regressions with our three measures of patriotism regressed on agricultural relief. Agricultural relief is positively correlated with all three measures of patriotism: it is highly significant when the dependent variable is the 1944 war bond purchases per capita or the World War II volunteering rate. In contrast, when the dependent variable is World War II medals per 1000 soldiers the *p*-value is is 0.12. We move to identification in columns 4-10 of the same table. In column 4 we estimate our first stage with state fixed effects: New Deal-era droughts still predict agricultural reliefs within states, and the *F*-statistics remains well above the critical value of 10 ($F = 86$). Columns 5 through 7 show the reduced form and columns 8 through 10 the two-stages least squares. In all cases patriotism is positively correlated both with our instrument and with the part of agricultural relief that is explained by droughts even after

accounting for state fixed effects. We conclude that state-level unobservable characteristics are unlikely to be driving our results.

5. Summary

Humans are the only animal that that routinely cooperates with large-scale groups of genetically unrelated individuals. What sustains such cooperation is a key question in the social sciences (de Quervain *et al*. 2004). From an evolutionary perspective, the willingness to fight and die for one's group is particularly puzzling – it is costly for the individual, but beneficial for the group. A growing literature has highlighted the importance of reciprocity to overcome selfish behavior – by either altruistically punishing defection, or by altruistically rewarding cooperation (Fehr and Gächter 2002; Sober and Wilson 1998).

In this paper, we combine these two perspectives, by examining how greater emergency relief during the 1930s affected Americans' willingness to perform patriotic acts during World War II. One strand of the literature on the link between welfare and warfare has focused on future benefits for soldiers – additional government handouts promised in the event of victory (Alesina *et al*. 2017). We emphasize a related but different perspective: an increased willingness to fight for one's own country after having already received important economic support in times of crisis.

Three key empirical facts support our argument: US counties receiving more relief payments during the 1930s bought more war bonds, sent more volunteers to the armed forces, and were home to more soldiers displaying conspicuous gallantry on the battlefield. The same pattern is visible for counties where income support for farmers was greatest because they were hit by adverse weather conditions. Because of the link between adverse weather and emergency relief, it seems likely that the relationship between welfare support and patriotism is causal.

These results are in line with an interpretation that emphasizes individuals reciprocating towards the nation state if their national government came to their aid in bad times. In other words, attitudes and behaviors common in small-group settings – where they may have helped to create the basis of human cooperation – can be successfully transposed to the national level if people experience immediate support in times of distress, making them feel like a member of a "super organism" composed of millions of compatriots (Haidt 2012).

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FIGURES AND GRAPHS

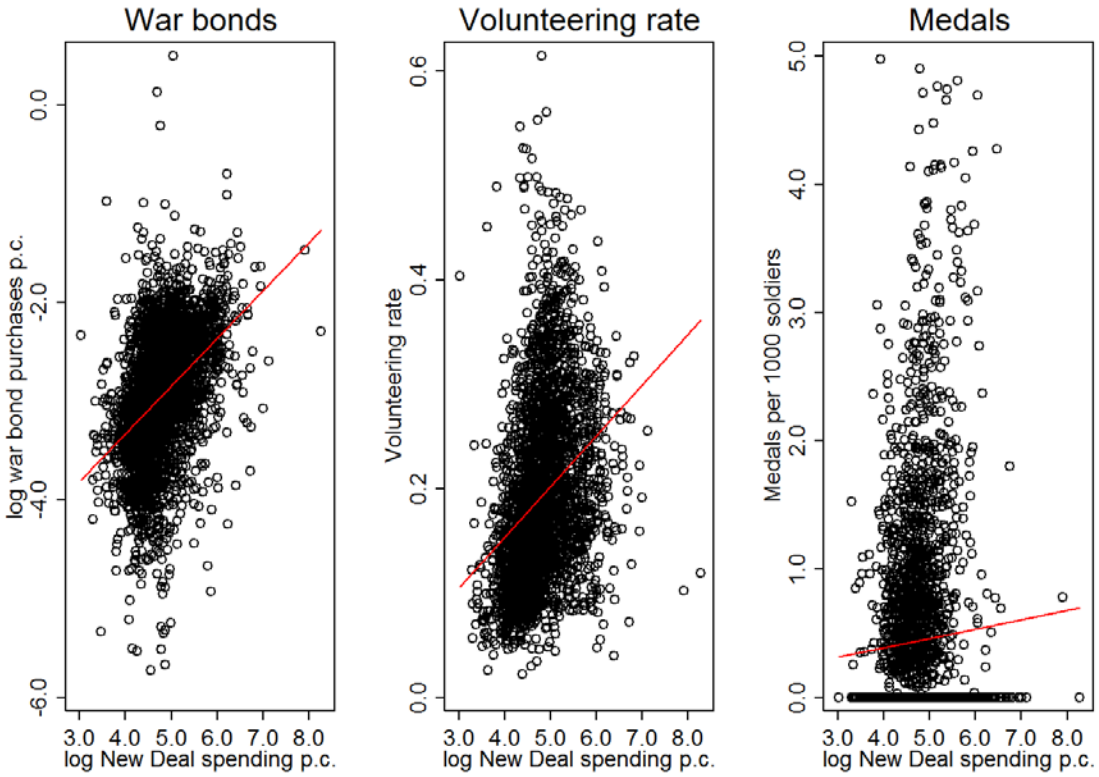

Figure 1: New Deal spending and support for US efforts in World War II. In each panel, the x-axis shows the log per capita New Deal grants. On the y-axis we plot the three measures of Patriotism: the log of 1944 purchases of war bonds per capita (left panel), share of World War II registrants who volunteered to serve (central panel) and number of World War II military award per 1000 soldiers (right panel). We exclude the 26 counties with more than 5 medals per 1000 soldiers to reduce the influence of these outliers. Results are stronger when we include these observations.

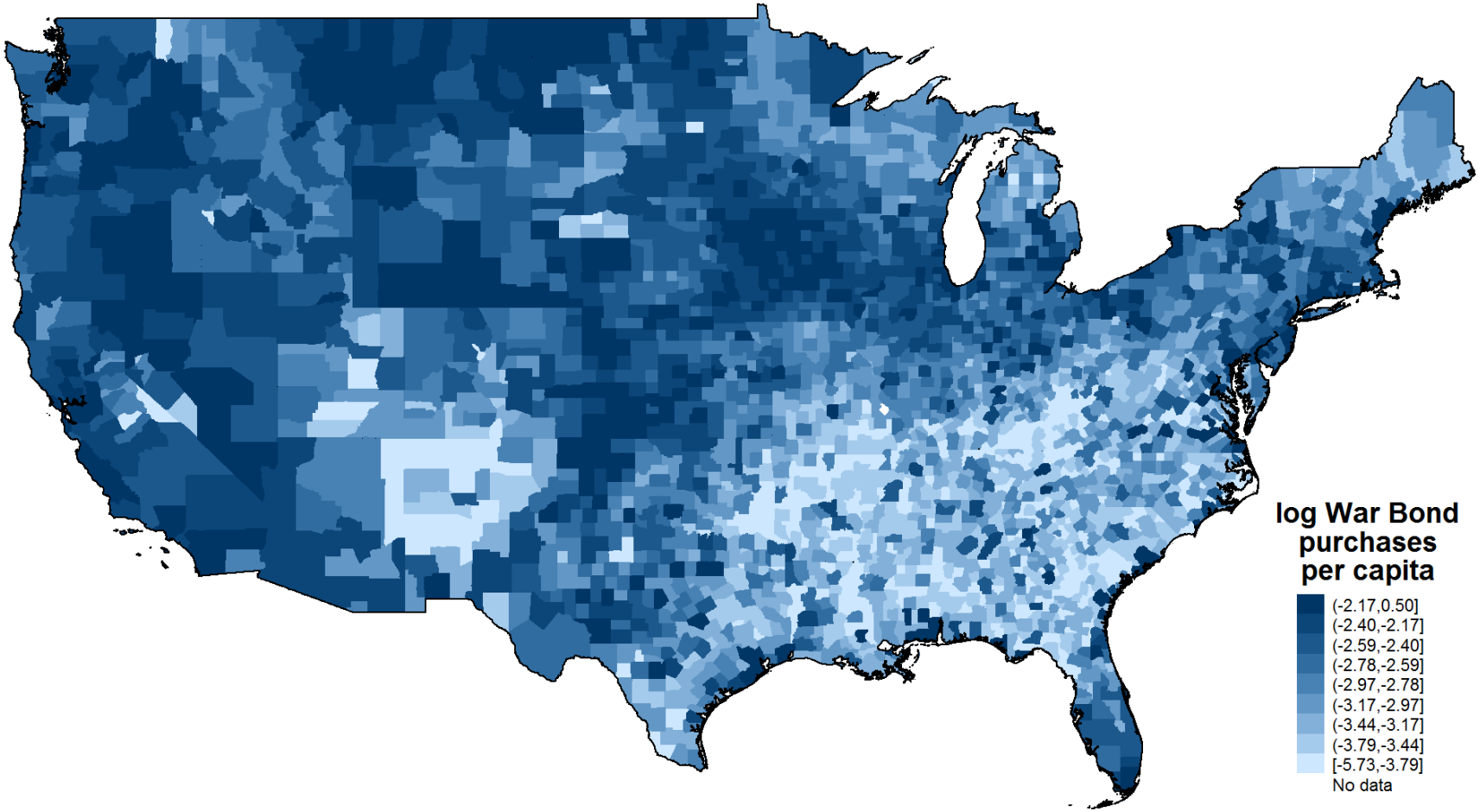

Figure 2. Geographical distribution of the log War Bond purchases per capita in 1944. Source: ICPSR (2012).

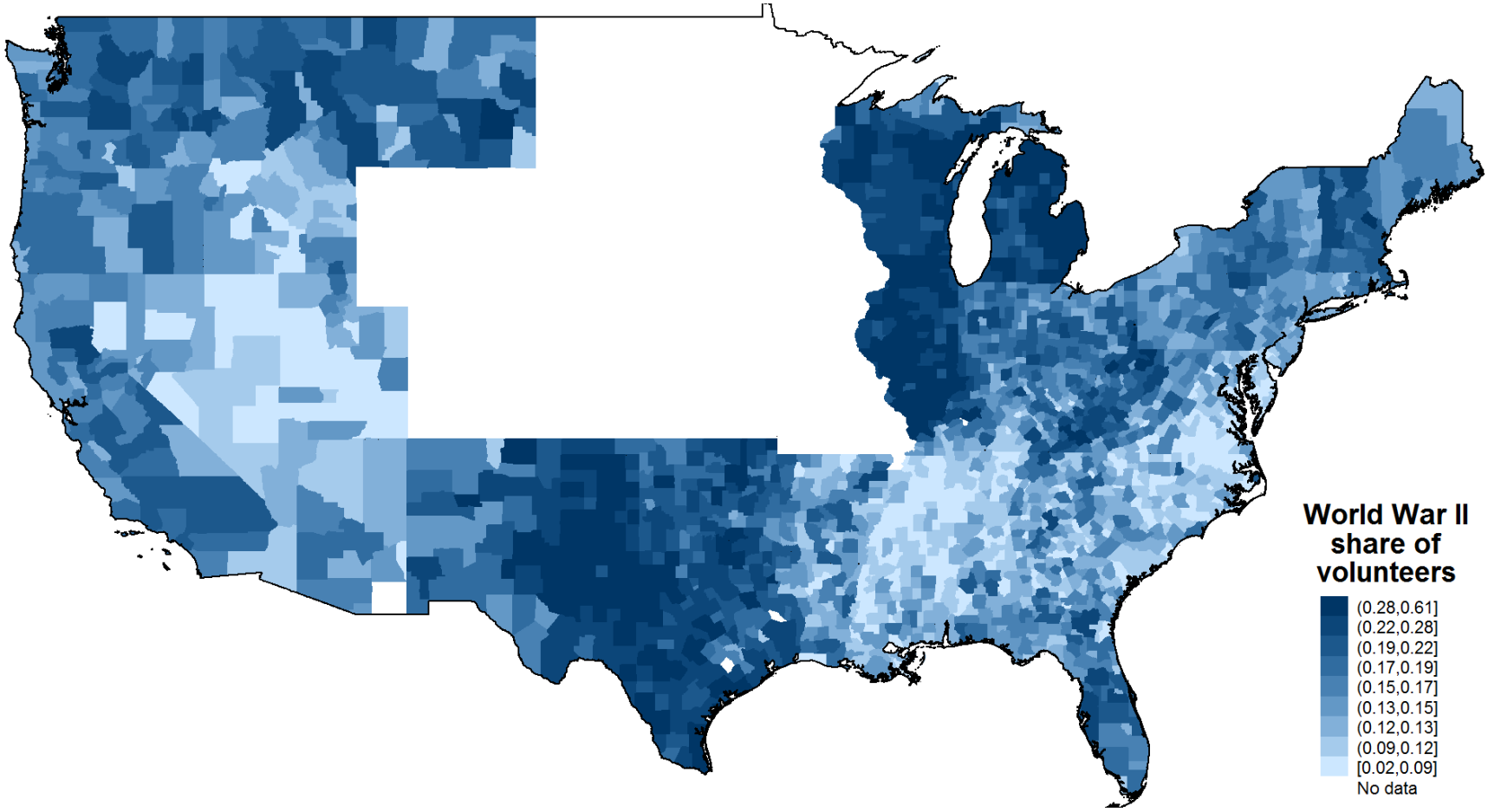

Figure 3: Share of volunteers relative to total registrants during World War II. We exclude the counties that belong to the 7th Service Command for which the National Archive have poor coverage. Source: NARA (2002).

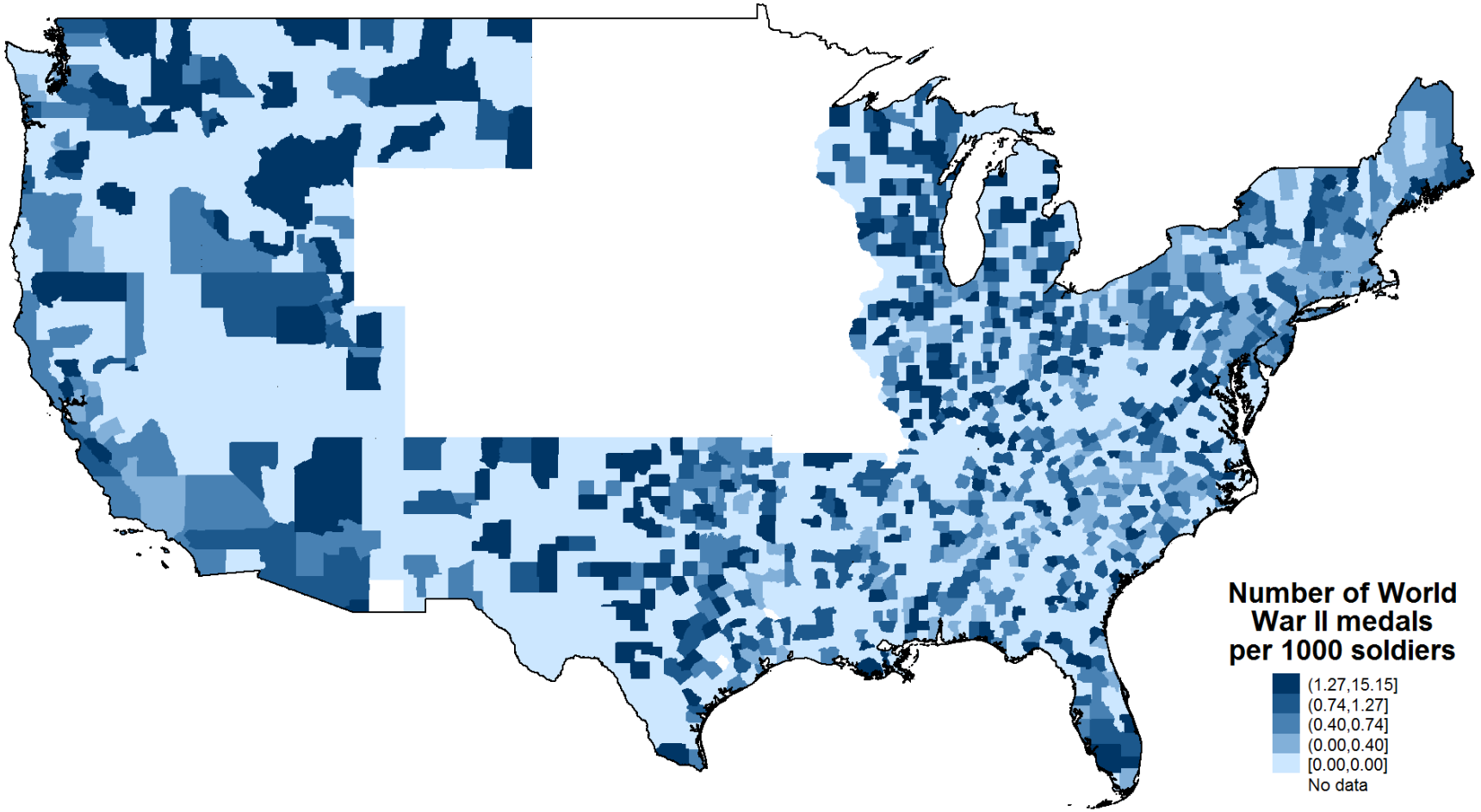

Figure 4: Number of Medals of Honor, Distinguished Service Cross and Silver Stars awarded during World War II per 1000 army registrants. We exclude the counties that belong to the 7th Service Command for which the National Archive have poor coverage. Source: homeofheroes.com and NARA (2002).

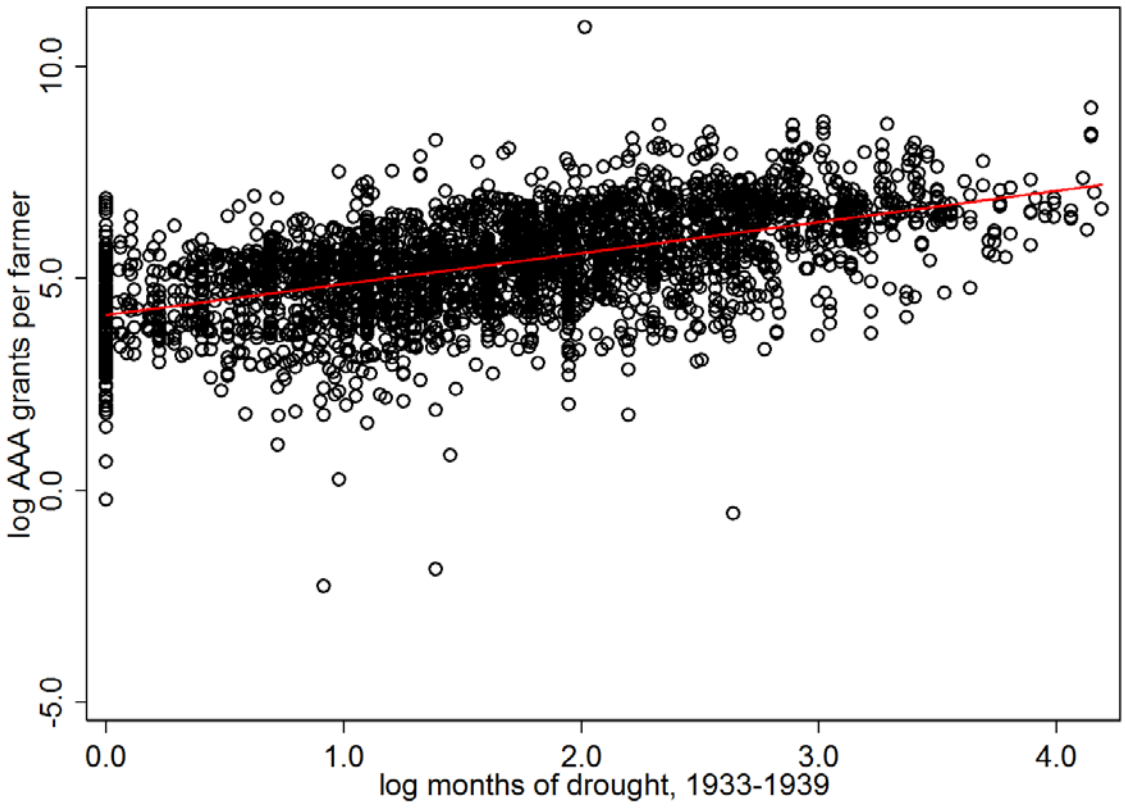

Figure 5: New Deal-era droughts and Agricultural Adjustment Administration grants. In each panel, the x-axis shows the log of the number of months with a severe drought between 1933 and 1939. On the y-axis we plot our measurement for agricultural relief (log per farmer grants) and the x axis displays the log number of months with severe drought from 1933-39.

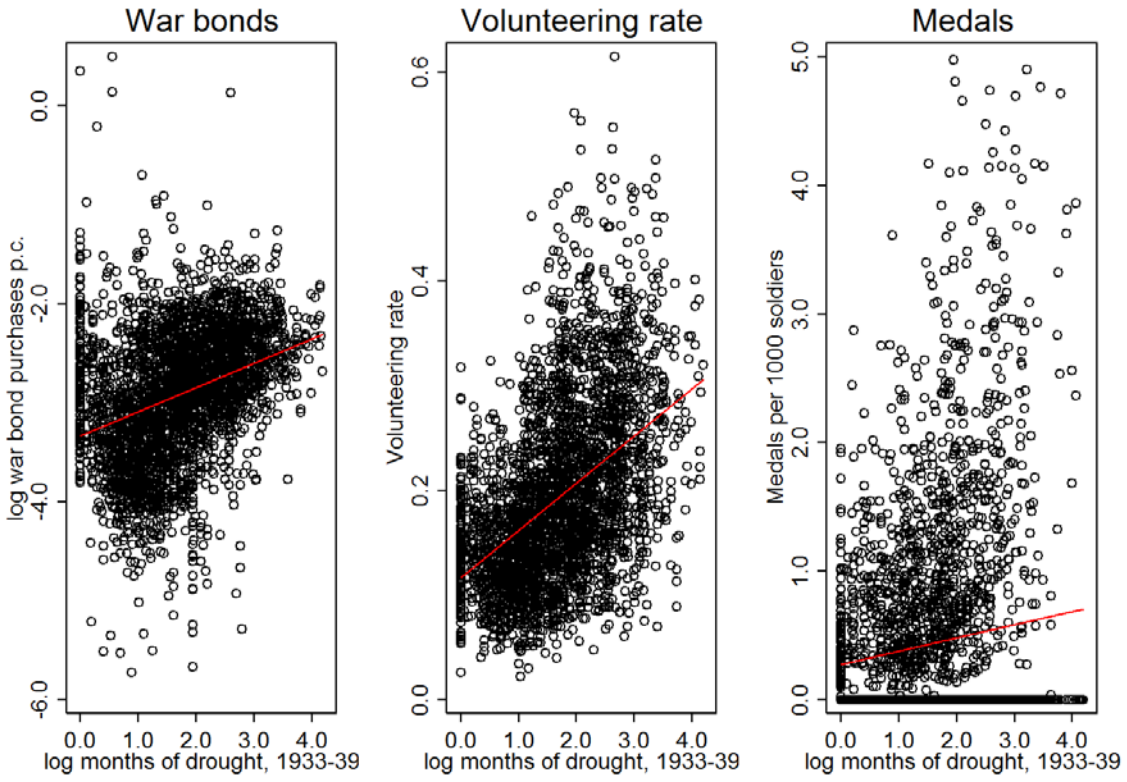

Figure 6. New Deal-era droughts and support for US efforts in World War II. In each panel, the x-axis shows the log of the number of months with a severe drought between 1933 and 1939. On the y-axis we plot the three measures of Patriotism: the log of 1944 purchases of war bonds per capita (left panel), share of World War II registrants who volunteered to serve (central panel) and number of World War II military award per 1000 soldiers (right panel). We exclude the 26 counties with more than 5 medals per 1000 soldiers to reduce the influence of these outliers. Results are stronger when we include these observations.

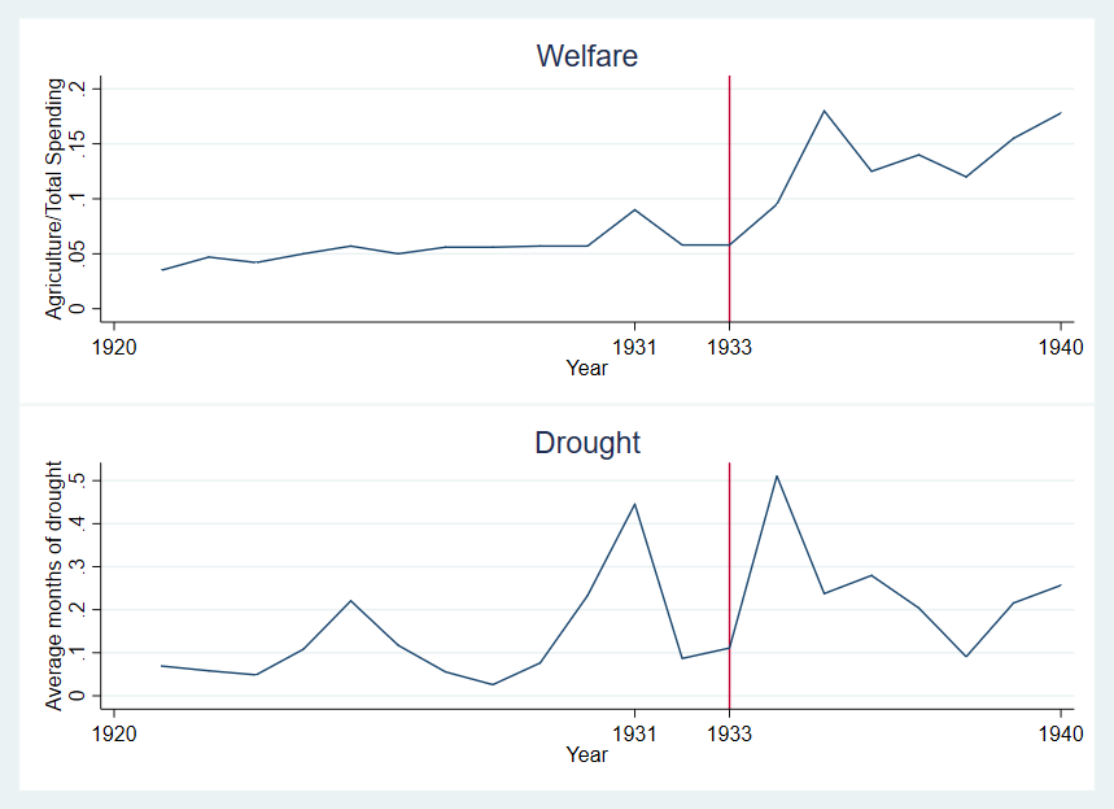

Figure 7: Upper time series displays the share of agricultural spending over total government spending (Libecap, 1997). The lower time series displays average number months with severe drought across time in the US. Red line in 1933 marks Roosevelt's election.

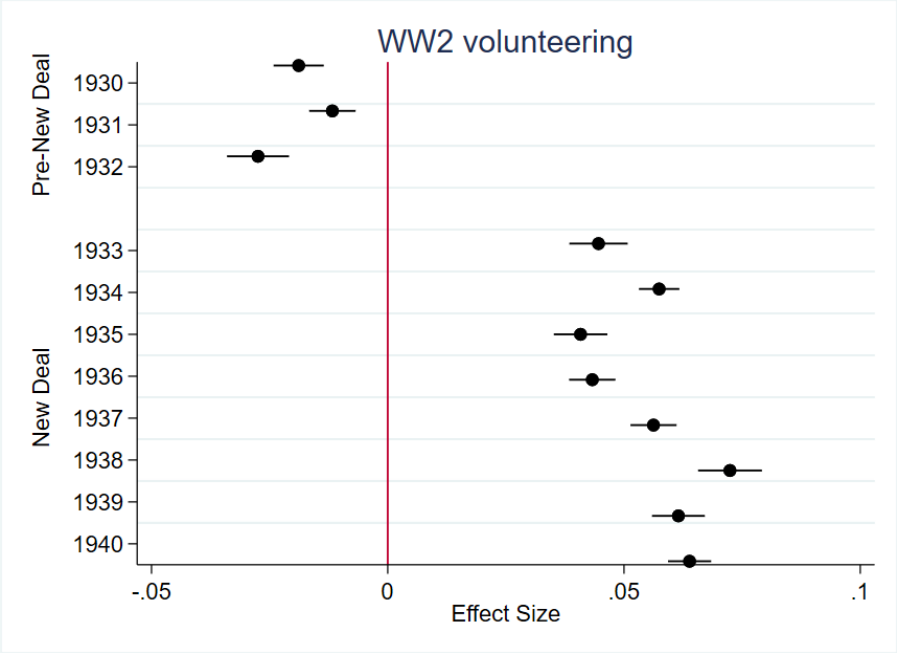

Figure 8a. Placebo for volunteering outcome. Point estimates (and 95% confidence intervals) for drought during the New Deal (1933-40) and prior that. All regressions include the standard set of controls: volunteering and casualty rate in WW1, log number of registrants in WW2, unemployment share in WW2, dummy for urban counties in 1930 and the mean share of votes for the Democratic party from 1896-1928. Outcome is share of volunteers in WW2.

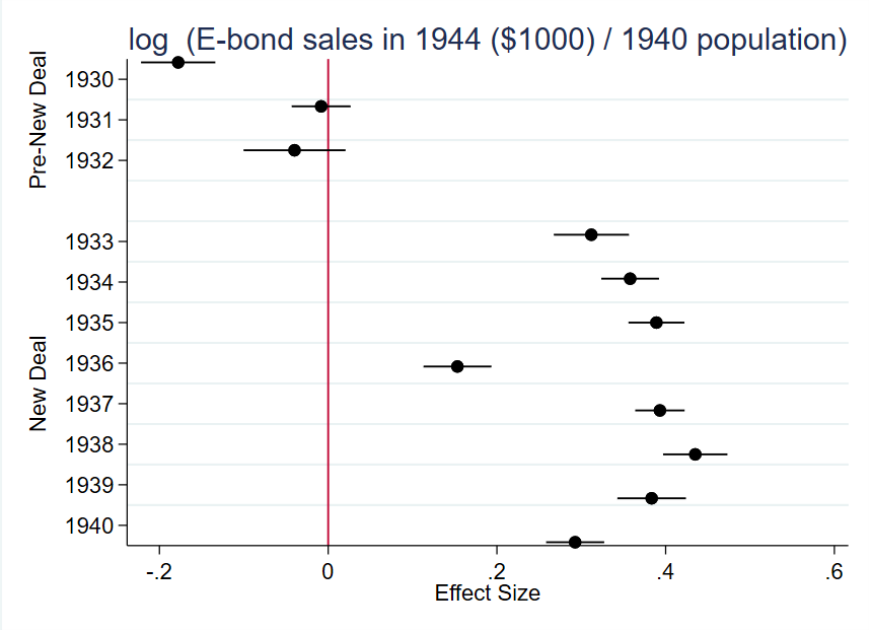

Figure 8b. Placebo for war bond outcome. Point estimates (and 95% confidence intervals) for drought during the New Deal (1933-40) and prior that. All regressions include the standard set of controls: volunteering and casualty rate in WW1, log number of registrants in WW2, unemployment share in WW2, dummy for urban counties in 1930 and the mean share of votes for the Democratic party from 1896-1928. Outcome is log per capita purchases of war bonds in 1944.

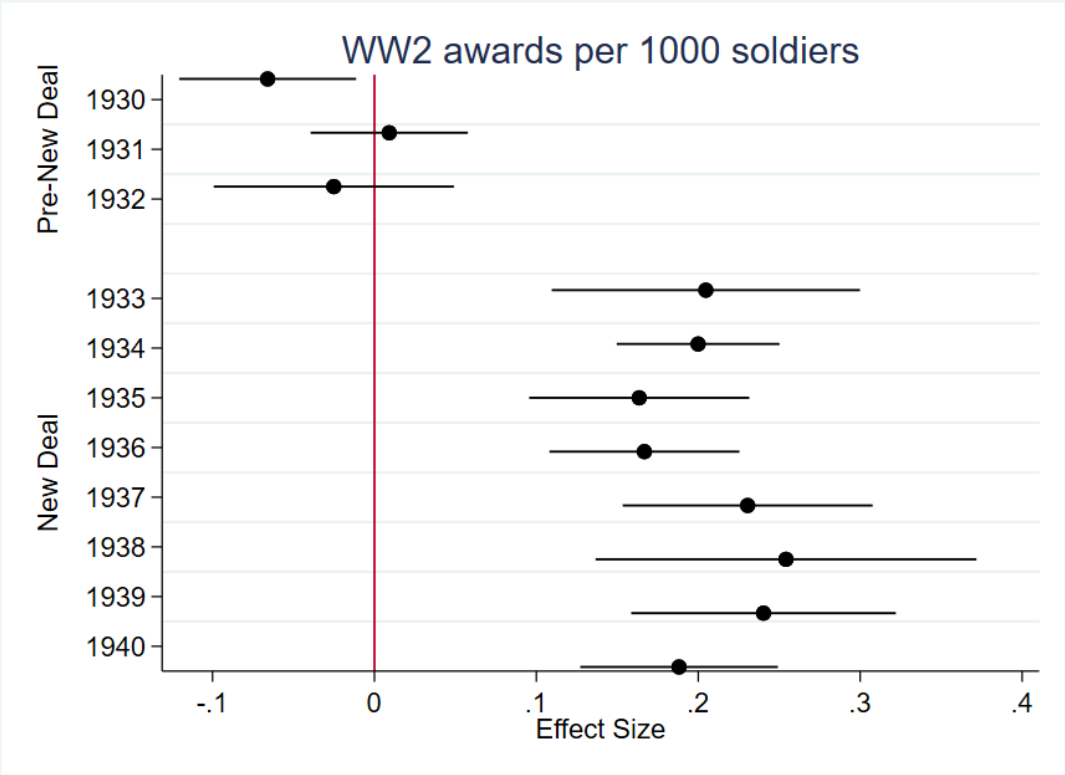

Figure 8c. Placebo for war medal outcome. Point estimates (and 95% confidence intervals) for drought during the New Deal (1933-40) and prior that. All regressions include the standard set of controls: volunteering and casualty rate in WW1, log number of registrants in WW2, unemployment share in WW2, dummy for urban counties in 1930 and the mean share of votes for the Democratic party from 1896-1928. Outcome is war medals per registrant in WW2. We Windsor the 1% tails of the distribution.

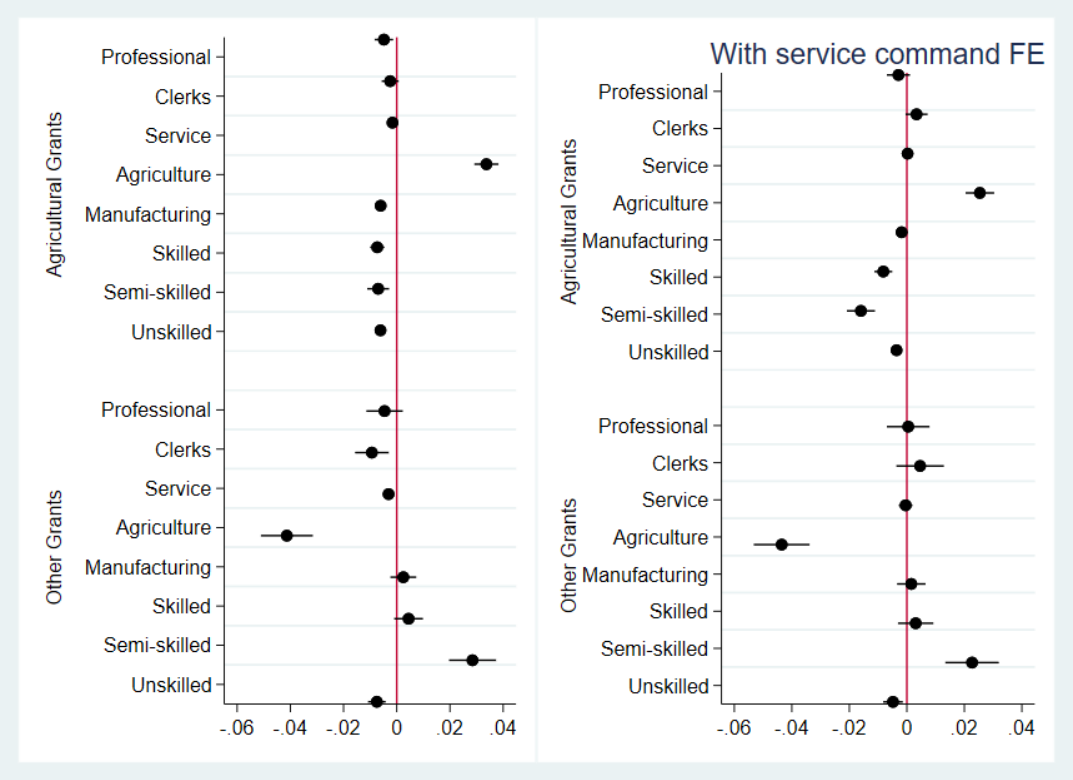

Figure 9. Effect of welfare spending (by type) on a profession's share among volunteers. All regressions control for a profession's share among draftees.

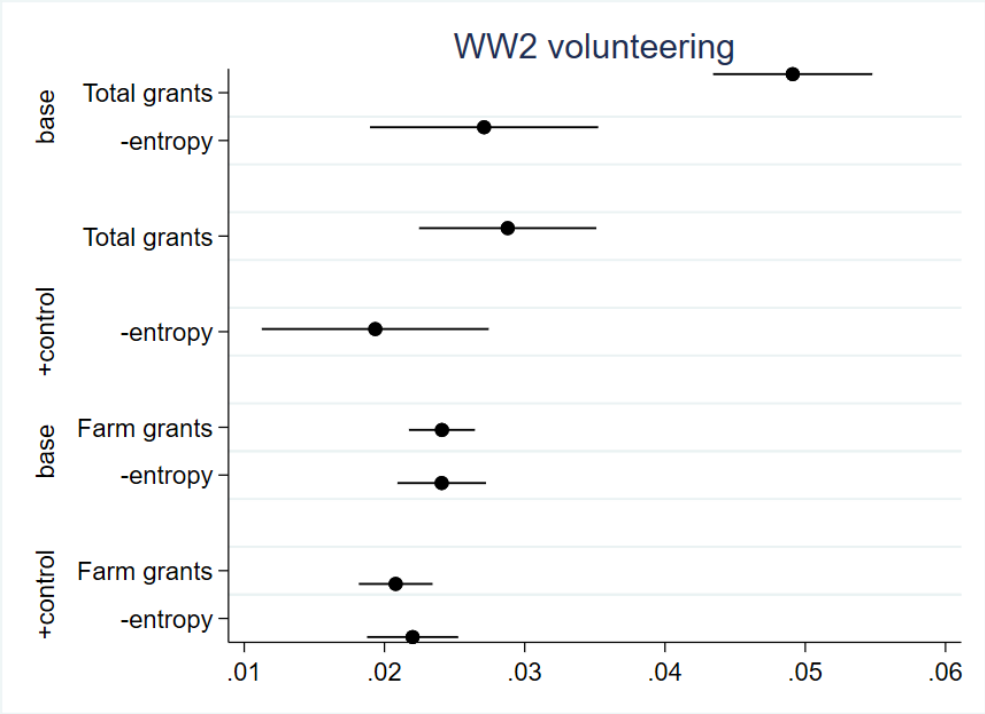

Figure 10a: Results with and without entropy balancing for volunteering. Treated counties are counties with above median welfare spending. We use the standard set of controls for rebalancing and as a control (in the +control specifications): volunteering and casualty rate in WW1, log number of registrants in WW2, unemployment share in WW2, dummy for urban counties in 1930 and the mean share of votes for the Democratic party from 1896-1928.

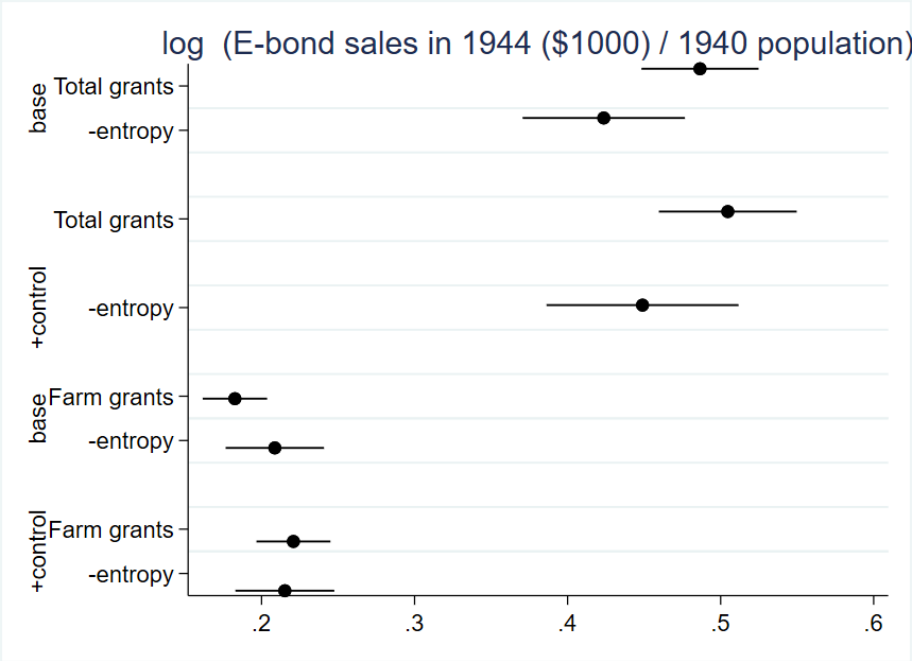

Figure 10b. Results with and without entropy balancing for bonds. Treated counties are counties with above median welfare spending. We use the standard set of controls for rebalancing and as a control (in the +control specifications): volunteering and casualty rate in WW1, log number of registrants in WW2, unemployment share in WW2, dummy for urban counties in 1930 and the mean share of votes for the Democratic party from 1896-1928.

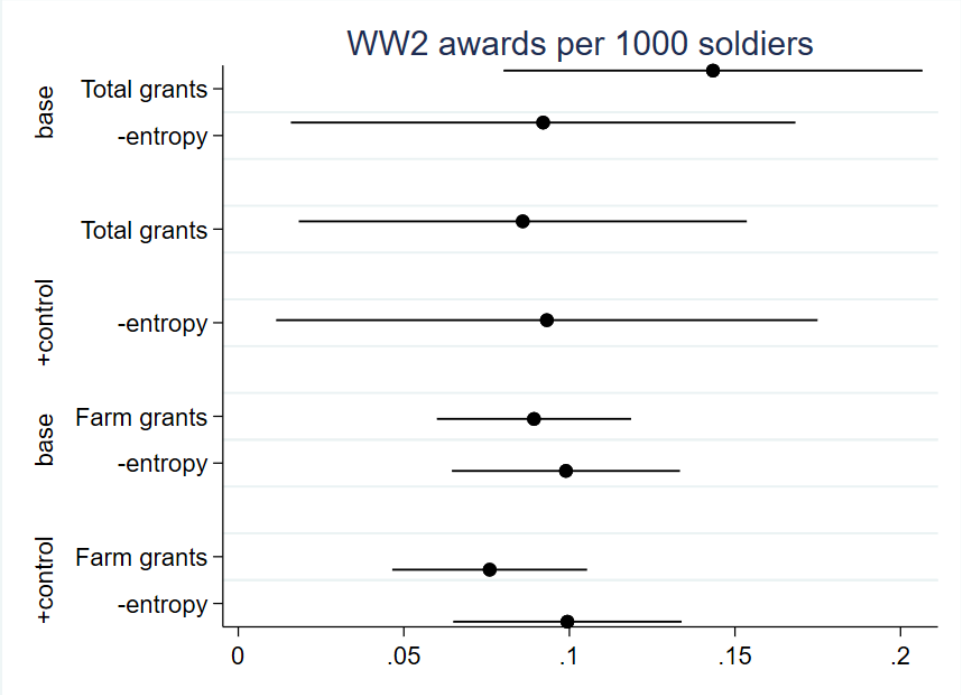

Figure 10c. Results with and without entropy balancing for war medals. Treated counties are counties with above median welfare spending. We use the standard set of controls for rebalancing and as a control (in the +control specifications): volunteering and casualty rate in WW1, log number of registrants in WW2, unemployment share in WW2, dummy for urban counties in 1930 and the mean share of votes for the Democratic party from 1896-1928.

TABLES

World War II variables	Mean	St. dev.	Observations
1944 war bond purchases per capita	67.23	68.72	2'846
World War II army registrants	2'824	8'253	2'240
World War II army volunteers	498	1'559	2'240
Share of World War II army volunteers	0.177	0.081	2'240
Number of World War II military awards	1.081	3.143	2'240
Number of World War II military awards per 1000 soldiers	0.433	0.744	2'240
World War II volunteers: 1942	192	694	2'240
Share of World War II volunteers: 1942	0.165	0.104	2'240
New Deal variables	Mean	St. dev.	Observations
New Deal grants per capita	149	138	2'846
Agricultural Adjustment Administration grants per farmer	430	1'203	2'846
Other New Deal grants per capita	106	118	2'846
Weather variable	Mean	St. dev.	Observations
Number of months with a severe drought: 1933-1939	6.994	8.314	2'846
County controls	Mean	St. dev.	Observations
Share of World War I volunteers: 1917	0.352	0.252	2'846
World War I medal (dummy)	0.622	0.485	2'846
World War I casualty rate	0.060	0.038	2'846
Unemployment rate: 1930	0.059	0.040	2'846
Unemployment rate: 1940	0.073	0.037	2'846
Urban county: 1930 (dummy)	0.561	0.496	2'846
Average Democratic vote: 1896-1928	0.493	0.188	2'846

Table 1. Summary statistics.

Dep. var.:	log 1944 war bond purchases per capita				World War II volunteering rate				World War II medals per 1000 soldiers			
log New Deal grants p.c.	0.487***	0.505***	0.366***		0.041***	0.029***	0.012***		0.153***	0.129***	0.069*	
	(0.020)	(0.023)	(0.025)		(0.003)	(0.004)	(0.003)		(0.035)	(0.038)	(0.042)	
log AAA grants per farmer				0.188***				0.009***				0.051***
				(0.014)				(0.001)				(0.018)
log other grants p.c.				0.157***				0.005**				0.023
				(0.022)				(0.002)				(0.032)
log WWII registrants		0.085***	0.143***	0.147***		-0.015***	-0.002	-0.001		-0.063***	-0.040**	-0.037**
		(0.014)	(0.014)	(0.014)		(0.002)	(0.002)	(0.002)		(0.018)	(0.018)	(0.018)
1917 volunteering rate		0.196***	0.135***	0.121***		0.002	0.012**	0.012**		0.104	0.105	0.105
		(0.041)	(0.040)	(0.040)		(0.007)	(0.005)	(0.005)		(0.070)	(0.072)	(0.072)
WWI medal		-0.006	-0.039*	-0.067***		0.003	0.001	-0.001		0.059	0.052	0.043
		(0.023)	(0.022)	(0.022)		(0.004)	(0.003)	(0.003)		(0.038)	(0.039)	(0.039)
WWI casualty rate		0.169	-0.751***	-0.535*		0.210***	0.020	0.035		0.358	0.065	0.163
		(0.283)	(0.269)	(0.288)		(0.053)	(0.038)	(0.038)		(0.444)	(0.489)	(0.494)
1940 unemployment rate		-2.392***	-2.317***	-0.959***		0.005	0.080*	0.138***		-0.661	-0.832*	-0.440
		(0.336)	(0.329)	(0.343)		(0.041)	(0.042)	(0.044)		(0.436)	(0.452)	(0.462)
Urban status 1930		0.328***	0.277***	0.224***		0.046***	0.023***	0.020***		0.107***	0.076*	0.062
		(0.027)	(0.025)	(0.025)		(0.004)	(0.003)	(0.003)		(0.040)	(0.041)	(0.041)
Share Democrats 1896-1928		-0.009***	-0.002***	-0.004***		-0.001***	-0.000***	-0.000***		-0.002***	-0.000	-0.001
		(0.001)	(0.001)	(0.001)		(0.000)	(0.000)	(0.000)		(0.001)	(0.001)	(0.001)
Constant	-5.274***	-5.599***			-0.016	0.148***			-0.287*	0.291		
	(0.095)	(0.178)			(0.016)	(0.027)			(0.160)	(0.220)		
Service command F.E. (9)			✓	✓			✓	✓			✓	✓
Observations	2,913	2,913	2,913	2,913	2,240	2,240	2,240	2,240	2,240	2,240	2,240	2,240
R-squared	0.174	0.369	0.446	0.463	0.075	0.183	0.505	0.511	0.012	0.025	0.036	0.038

Table 2. World War II volunteering rate patriotic support. Robust standard errors in parentheses,* $p < .1$, ** $p < .05$, *** $p < .01$. Regressions on columns 5 through 12 exclude the seventh service command. Log other relief per capita is total grants minus agricultural grants.

Panel A. Unconditional correlations.

Dep. var.:	log 1930 population	WWI volunteering rate	WWI medal	WWI casualty rate	1930 unemployment rate	Urban status 1930	Share Democrats 1896-1928
log months of drought 1933-1939	-0.325***	-0.000	-0.039***	0.002	0.003***	-0.005	-3.885***
	(0.032)	(0.007)	(0.013)	(0.001)	(0.001)	(0.014)	(0.515)
R^2	0.058	0.000	0.004	0.001	0.003	0.000	0.023

Panel B. Correlation within service command.

Dep. var.:	log 1930 population	WWI volunteering rate	WWI medal	WWI casualty rate	1930 unemployment rate	Urban status 1930	Share Democrats 1896-1928
log months of drought 1933-1939	-0.246***	-0.001	0.015	0.002	0.000	-0.004	-0.622
	(0.038)	(0.008)	(0.017)	(0.001)	(0.001)	(0.018)	(0.474)
Service command Fes	✓	✓	✓	✓	✓	✓	✓
R^2	0.163	0.062	0.069	0.152	0.148	0.047	0.503
Observations	2,240	2,240	2,240	2,240	2,240	2,240	2,240

Table 3. Balancedness: New Deal-era droughts and pre-existing characteristics of the county. Robust standard errors in parentheses, * p<0.10, ** p<0.05, *** p<0.01. All models use service command fixed effects. Dependent variables are (in that order) log of population in 1930, share of volunteers in WW1, death rate among soldiers in WW1, unemployment rate in 1930, unemployment rate in 1940, share of rural citizens in 1920, average democrat vote share in presidential election from 1896 to 1928 and log of wholesale wages per employed.

Dep. var.:	log Agricultural Adjustment Administration grants per farmer		
log months of drought 1933-1939	0.727***	0.681***	0.466***
	(0.020)	(0.024)	(0.029)
log WWII registrants		-0.187***	-0.092***
		(0.026)	(0.026)
1917 volunteering rate		0.080	0.049
		(0.073)	(0.071)
WWI medal		0.065	0.090**
		(0.041)	(0.040)
WWI casualty rate		-2.134***	-2.433***
		(0.640)	(0.672)
1940 unemployment rate		-5.748***	-6.369***
		(0.521)	(0.549)
Urban status 1930		0.257***	0.176***
		(0.046)	(0.045)
Share Democrats 1896-1928		0.008***	0.009***
		(0.001)	(0.001)
Constant	4.154***	5.429***	
	(0.040)	(0.205)	
Service command F.E. (9)			✓
Observations	2,913	2,913	2,913
R-squared	0.299	0.390	0.452
F-test of excluded instrument	1265	819	252

Table 4. First stage: New Deal-era droughts and Agricultural Adjustment Administration grants.
Standardized beta coefficients; Robust standard errors in parentheses. Outcome is log agricultural grants per farmer. Our instrument is log months of drought from 1933-39. * $p < .1$, ** $p < .05$, *** $p < .01$

Dep. var.:	log 1944 war bond purchases per capita			World War II volunteering rate			World War II medals per 1000 soldiers		
log months of drought 1933-1939	0.260***	0.264***	0.213***	0.038***	0.031***	0.016***	0.130***	0.104***	0.104***
	(0.013)	(0.014)	(0.017)	(0.002)	(0.002)	(0.002)	(0.024)	(0.023)	(0.029)
log WWII registrants		0.204***	0.140***		0.002	0.011**		0.104	0.101
		(0.043)	(0.041)		(0.007)	(0.005)		(0.070)	(0.071)
1917 volunteering rate		-0.046*	-0.069***		0.001	-0.001		0.051	0.042
		(0.024)	(0.023)		(0.003)	(0.003)		(0.038)	(0.039)
WWI medal		-0.050	-0.955***		0.222***	0.016		0.394	0.038
		(0.299)	(0.283)		(0.054)	(0.038)		(0.449)	(0.495)
WWI casualty rate		0.103***	0.153***		-0.010***	-0.000		-0.048***	-0.029
		(0.014)	(0.014)		(0.002)	(0.002)		(0.018)	(0.018)
1940 unemployment rate		-0.563*	-1.306***		0.106***	0.122***		-0.198	-0.579
		(0.339)	(0.325)		(0.041)	(0.043)		(0.407)	(0.429)
Urban status 1930		0.261***	0.228***		0.039***	0.020***		0.084**	0.060
		(0.029)	(0.026)		(0.004)	(0.003)		(0.041)	(0.041)
Share Democrats 1896-1928		-0.010***	-0.002***		-0.001***	-0.000***		-0.002**	-0.000
		(0.001)	(0.001)		(0.000)	(0.000)		(0.001)	(0.001)
Constant	-3.368***	-3.757***		0.124***	0.197***		0.252***	0.630***	
	(0.027)	(0.117)		(0.003)	(0.018)		(0.029)	(0.158)	
Service command F.E.s			✓			✓			✓
Observations	2,913	2,913	2,913	2,240	2,240	2,240	2,240	2,240	2,240
R-squared	0.123	0.317	0.423	0.127	0.225	0.514	0.017	0.028	0.040

Table 5. Reduced form: New Deal-era droughts and World War II patriotic support. Robust standard errors in parentheses. Reduced form results. Columns 1-3 show results using log war bond sales per capita as dependent variable. Columns 4-6 use volunteer share in WW2 and columns 7-9 medals per 1000 soldiers as dependent variable. Constant is omitted from regression table.

* $p < .1$, ** $p < .05$, *** $p < .01$

Dep. var.:	log 1944 war bond purchases per capita			World War II volunteering rate			World War II medals per 1000 soldiers		
log AAA grants per farmer	0.358***	0.388***	0.456***	0.062***	0.050***	0.038***	0.211***	0.167***	0.245***
	(0.019)	(0.022)	(0.040)	(0.005)	(0.004)	(0.006)	(0.039)	(0.037)	(0.070)
log WWII registrants		0.173***	0.118**		0.005	0.013**		0.117*	0.113
		(0.045)	(0.046)		(0.007)	(0.006)		(0.071)	(0.073)
1917 volunteering rate		-0.071***	-0.110***		-0.002	-0.005*		0.040	0.011
		(0.025)	(0.026)		(0.004)	(0.003)		(0.039)	(0.042)
WWI medal		0.778**	0.156		0.343***	0.105**		0.801*	0.614
		(0.346)	(0.408)		(0.064)	(0.048)		(0.482)	(0.571)
WWI casualty rate		0.175***	0.195***		-0.002	0.002		-0.023	-0.012
		(0.018)	(0.018)		(0.003)	(0.002)		(0.020)	(0.019)
1940 unemployment rate		1.668***	1.601***		0.310***	0.350***		0.487	0.895
		(0.370)	(0.427)		(0.050)	(0.061)		(0.448)	(0.632)
Urban status 1930		0.161***	0.147***		0.023***	0.013***		0.033	0.011
		(0.031)	(0.031)		(0.005)	(0.004)		(0.045)	(0.046)
Share Democrats 1896-1928		-0.013***	-0.007***		-0.001***	-0.001***		-0.004***	-0.004**
		(0.001)	(0.001)		(0.000)	(0.000)		(0.001)	(0.001)
Constant	-4.854***	-5.865***		-0.138***	-0.047		-0.642***	-0.190	
	(0.107)	(0.225)		(0.024)	(0.034)		(0.195)	(0.266)	
Service command F.E.s			✓			✓			✓
Observations	2,913	2,913	2,913	2,240	2,240	2,240	2,240	2,240	2,240

Table 6: Two stage least squares: Agricultural Adjustment Administration grants and World War II patriotic support.
Robust standard errors in parentheses. Columns 1-3 show results using log war bond sales per capita as dependent variable. Columns 4-6 use volunteer share in WW2 and columns 7-9 medals per 1000 soldiers as dependent variable. Constant is omitted from regression table.
* $p < .1$, ** $p < .05$, *** $p < .01$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Farmer/Vol	Farmer/Vol	Farmer/Vol	Farmer/Vol	Farmer/Vol	Farmer/Vol	Farmer/Vol	Farmer/Vol	Farmer/Vol	Farmer/Vol
log-Agri_Grants per farmer	0.0315***	0.0337***	0.0254***	0.0248***	0.0136***					
	(0.00226)	(0.00232)	(0.00253)	(0.00254)	(0.00236)					
Log other relief per capita						-0.0416***	-0.0413***	-0.0435***	-0.0431***	-0.00391
						(0.00489)	(0.00499)	(0.00495)	(0.00497)	(0.00522)
Vol-WW1				-0.0590***	-0.00236				-0.0546***	-0.00127
				(0.0114)	(0.0101)				(0.0114)	(0.0101)
FarmerDraft/Soldier		0.0678***	0.0633***	0.0687***			-0.00158	0.0307**	0.0371***	
		(0.0115)	(0.0132)	(0.0132)			(0.0130)	(0.0139)	(0.0138)	
Farmers40-PC					1.405***					1.455***
					(0.0641)					(0.0716)
Service Command FE	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
N	2292	2288	2288	2248	2237	2309	2305	2305	2262	2250

Table 7: Effect of agricultural spending on farmers. Robust standard errors in parentheses. Outcome is the share of farmer volunteers over all volunteers in a county. Variable FarmerDraft/Soldiers is the share of drafted farmers over all soldiers and therefore aims to control for the local labor market structure. Farmers40-PC is the share of farmers over all citizens in the 1940 census. Log other relief per capita is total grants minus agricultural grants. Constant is omitted from regression table.
* p<0.10, ** p<0.05, *** p<0.01

Appendix A

```
Treated units: 1459    total of weights: 1459
Control units: 1477    total of weights: 1459
```

Before: without weighting

	Treat			Control		
	mean	variance	skewness	mean	variance	skewness
VolWW1	.3739	.06934	.8916	.3314	.05791	1.024
AnyAwardWW1	.6032	.2395	-.4217	.6439	.2295	-.6009
CasualtyWW1	.06396	.001539	1.549	.05587	.001349	1.341
logRegistr~2	6.589	1.527	.7571	7.144	.9981	.4834
Unemp1940	.0788	.001644	1.073	.06419	.001254	1.201
Urban1930	.5312	.2492	-.125	.5897	.2421	-.3648
Democrat9628	42.96	217.9	.9683	55.46	394	.243

After: _webal as the weighting variable

	Treat			Control		
	mean	variance	skewness	mean	variance	skewness
VolWW1	.3739	.06934	.8916	.3739	.07836	.8515
AnyAwardWW1	.6032	.2395	-.4217	.6031	.2395	-.4217
CasualtyWW1	.06396	.001539	1.549	.06396	.002018	1.656
logRegistr~2	6.589	1.527	.7571	6.589	1.294	-.7295
Unemp1940	.0788	.001644	1.073	.0788	.002452	1.911
Urban1930	.5312	.2492	-.125	.5312	.2492	-.125
Democrat9628	42.96	217.9	.9683	42.96	250.1	.6657

Table A1. Entropy balancing. Results show difference in covariates between above and below median welfare recipient counties before and after weighting. Variables correspond to our standard set of controls.

	no of matches								
dependent variable	3	8	12	3	8	12	3	8	12
Volunteer Share WW2	0.005	0.009*	0.010**	0.037***	0.040***	0.041***	0.015***	0.019***	0.022***
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Log per capita war bonds 1944	0.099**	0.094***	0.098***	0.352***	0.367***	0.382***	0.156***	0.195***	0.223***
	(0.038)	(0.033)	(0.032)	(0.031)	(0.028)	(0.027)	(0.031)	(0.029)	(0.028)
Medals per soldier WW2	-0.045	-0.027	-0.030	0.055	0.095**	0.106**	0.021	0.030	0.049
	(0.082)	(0.070)	(0.067)	(0.054)	(0.047)	(0.046)	(0.061)	(0.054)	(0.051)
Longitude	✓	✓	✓				✓	✓	✓
Latitude	✓	✓	✓				✓	✓	✓
Log population 1940	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls				✓	✓	✓	✓	✓	✓

Table A2. Results from nearest neighbor matching. We show results for our three outcomes volunteering, log purchase of war bonds and medals per soldier in WW2. We match 3, 8 or 12 counties respectively and display the average treatment effects of the treatment variable "above median log total grants per capita". We match by longitude, latitude, log population in 1940 and the standard set of controls: volunteering and casualty rate in WW1, log number of registrants in WW2, unemployment share in WW2, dummy for urban counties in 1930 and the mean share of votes for the Democratic party from 1896-1928.
* p < .1, ** p < .05, *** p<.01.

Dep. var.:	World War II volunteers / 1930 population				log World War II volunteers				1942 volunteering rate			
log New Deal grants p.c.	2.379***	2.453***	1.680***		0.264***	0.184***	0.082***		0.052***	0.051***	0.032***	
	(0.262)	(0.283)	(0.315)		(0.021)	(0.021)	(0.017)		(0.005)	(0.006)	(0.005)	
log AAA grants per farmer				0.691***				0.048***				0.022***
				(0.117)				(0.008)				(0.002)
log other grants p.c.				1.177***				0.052***				0.015***
				(0.262)				(0.014)				(0.004)
log WWII registrants		1.028**	1.237**	1.231**	1.032***	0.941***	1.008***	1.010***		-0.004	0.006**	0.008***
		(0.466)	(0.482)	(0.482)	(0.008)	(0.010)	(0.008)	(0.008)		(0.003)	(0.003)	(0.003)
1917 volunteering rate		1.670***	1.664***	1.615**		0.083**	0.131***	0.129***		0.017*	0.023***	0.023***
		(0.620)	(0.631)	(0.628)		(0.034)	(0.027)	(0.026)		(0.009)	(0.008)	(0.008)
WWI medal		-1.022*	-0.769	-0.868		0.008	0.010	0.003		-0.004	-0.002	-0.006
		(0.597)	(0.590)	(0.597)		(0.019)	(0.016)	(0.016)		(0.005)	(0.004)	(0.004)
WWI casualty rate		7.053	11.028*	11.532*		1.309***	0.510**	0.572**		0.072	-0.060	-0.022
		(5.397)	(6.460)	(6.493)		(0.303)	(0.227)	(0.226)		(0.060)	(0.058)	(0.057)
1940 unemployment rate		6.276	6.571	9.534*		0.323	0.555**	0.819***		-0.163***	-0.167***	-0.013
		(5.746)	(5.298)	(5.220)		(0.251)	(0.257)	(0.267)		(0.052)	(0.054)	(0.055)
Urban status 1930		0.836**	0.413	0.235		0.251***	0.130***	0.118***		0.056***	0.037***	0.031***
		(0.332)	(0.320)	(0.327)		(0.021)	(0.018)	(0.018)		(0.005)	(0.005)	(0.005)
Share Democrats 1896-1928		0.001	-0.023***	-0.029***		-0.005***	-0.003***	-0.003***		-0.000***	-0.000	-0.000***
		(0.007)	(0.008)	(0.009)		(0.001)	(0.001)	(0.001)		(0.000)	(0.000)	(0.000)
Constant	-1.282	-10.316***	-5.685	-5.674	-3.298***	-2.299***	-2.399***	-2.440***	-0.079***	-0.055	-0.028	-0.041
	(1.283)	(3.482)	(4.017)	(4.012)	(0.122)	(0.142)	(0.114)	(0.104)	(0.022)	(0.036)	(0.033)	(0.029)
Service command F.E. (9)			✓	✓			✓	✓			✓	✓
Observations	2,226	2,226	2,226	2,226	2,240	2,240	2,240	2,240	2,240	2,240	2,240	2,240
R-squared	0.033	0.079	0.123	0.125	0.873	0.892	0.931	0.931	0.072	0.145	0.274	0.298

Table A3. Alternative definitions of volunteering: New Deal spending and World War II volunteering rate. Robust standard errors in parentheses, Columns 1-4 use volunteers per capita as an outcome. Columns 5-8 use log-volunteers as an outcome and columns 9-12 look at the share of volunteers among the 1942 cohort. Constant is omitted from regression table.

* $p < .1$, ** $p < .05$, *** $p < .01$

Dep. var.:	World War II volunteers / 1930 population			log World War II volunteers			1942 volunteering rate		
log months of drought 1933-1939	1.187***	1.533***	1.295***	0.224***	0.170***	0.077***	0.044***	0.043***	0.032***
	(0.172)	(0.173)	(0.186)	(0.012)	(0.012)	(0.012)	(0.003)	(0.004)	(0.004)
log WWII registrants		1.161**	1.340***	1.054***	0.967***	1.015***		0.003	0.009***
		(0.479)	(0.491)	(0.008)	(0.011)	(0.008)		(0.003)	(0.003)
1917 volunteering rate		1.690***	1.617**		0.082**	0.128***		0.017*	0.021***
		(0.645)	(0.648)		(0.034)	(0.027)		(0.009)	(0.008)
WWI medal		-1.155*	-0.900		-0.003	0.002		-0.006	-0.005
		(0.600)	(0.597)		(0.019)	(0.016)		(0.005)	(0.004)
WWI casualty rate		7.568	10.873*		1.373***	0.493**		0.088	-0.067
		(5.455)	(6.478)		(0.312)	(0.231)		(0.060)	(0.057)
1940 unemployment rate		15.469***	12.108**		0.973***	0.819***		0.019	-0.062
		(5.408)	(4.975)		(0.248)	(0.263)		(0.051)	(0.054)
Urban status 1930		0.546	0.206		0.211***	0.118***		0.046***	0.032***
		(0.336)	(0.331)		(0.021)	(0.018)		(0.005)	(0.005)
Share Democrats 1896-1928		0.000	-0.022**		-0.004***	-0.003***		-0.000***	-0.000
		(0.007)	(0.008)		(0.000)	(0.001)		(0.000)	(0.000)
Constant	8.236***	-2.283		-2.524***	-1.899***		0.104***	0.070***	
	(0.331)	(2.999)		(0.069)	(0.092)		(0.004)	(0.023)	
Service command F.E.s			✓			✓			✓
Observations	2,226	2,226	2,226	2,240	2,240	2,240	2,240	2,240	2,240
R-squared	0.016	0.074	0.124	0.878	0.896	0.931	0.102	0.173	0.288

Table A4. Alternative definitions of volunteering: New Deal-era droughts and World War II volunteering rate. Standard errors in parentheses. Columns 1-3 use volunteers per capita as an outcome. Columns 4-6 use log number of volunteers as an outcome. Columns 7-9 use the share of volunteers (over registrants) in the 1942 cohort. Constant is omitted from regression table.

* $p < .1$, ** $p < .05$, *** $p < .01$

Dep. var.:	World War II volunteers / 1930 population			log World War II volunteers			1942 volunteering rate		
log AAA grants per farmer	1.936***	2.456***	3.032***	0.397***	0.273***	0.180***	0.072***	0.070***	0.076***
	(0.288)	(0.279)	(0.463)	(0.029)	(0.021)	(0.030)	(0.006)	(0.006)	(0.010)
log WWII registrants		1.542***	1.542***	1.108***	1.009***	1.027***		0.013***	0.014***
		(0.501)	(0.506)	(0.013)	(0.013)	(0.010)		(0.003)	(0.003)
1917 volunteering rate		1.897***	1.781***		0.103***	0.137***		0.022**	0.025***
		(0.650)	(0.671)		(0.037)	(0.029)		(0.010)	(0.010)
WWI medal		-1.319**	-1.281**		-0.021	-0.020		-0.011**	-0.015***
		(0.613)	(0.631)		(0.021)	(0.018)		(0.005)	(0.005)
WWI casualty rate		13.391**	17.786**		2.036***	0.917***		0.256***	0.112
		(5.892)	(7.191)		(0.359)	(0.264)		(0.074)	(0.080)
1940 unemployment rate		25.202***	29.787***		2.091***	1.904***		0.304***	0.396***
		(5.192)	(5.043)		(0.296)	(0.344)		(0.062)	(0.088)
Urban status 1930		-0.213	-0.410		0.128***	0.082***		0.025***	0.016**
		(0.375)	(0.387)		(0.025)	(0.020)		(0.006)	(0.006)
Share Democrats 1896-1928		-0.032***	-0.063***		-0.008***	-0.005***		-0.001***	-0.001***
		(0.007)	(0.011)		(0.001)	(0.001)		(0.000)	(0.000)
Constant	0.016	-14.262***		-4.627***	-3.237***		-0.200***	-0.271***	
	(1.551)	(3.918)		(0.211)	(0.174)		(0.030)	(0.046)	
Service command F.E.s			✓			✓			✓
Observations	2,226	2,226	2,226	2,240	2,240	2,240	2,240	2,240	2,240

Table A5. Alternative definitions of volunteering: two-stages least squares. New Deal spending and World War II volunteering rate. Robust standard errors in parentheses Columns 1-3 use volunteers per capita as an outcome. Columns 4-6 use log number of volunteers as an outcome. Columns 7-9 use the share of volunteers (over registrants) in the 1942 cohort. Constant is omitted from regression table. * $p < .1$, ** $p < .05$, *** $p < .01$

Dep. var.:	log war bonds	WWII volunteering rate	WWII medals per 1000 soldiers	log AAA grants per farmer	log war bonds	WWII volunteering rate	WWII medals per 1000 soldiers	log war bonds	WWII volunteering rate	WWII medals per 1000 soldiers
log AAA grants per farmer	0.136***	0.005***	0.031					0.454***	0.052***	0.223
	(0.014)	(0.001)	(0.020)					(0.072)	(0.011)	(0.138)
log other grants p.c.	0.140***	0.004*	-0.017							
	(0.026)	(0.002)	(0.036)							
log months of drought 1933-1939				0.300***	0.136***	0.015***	0.063*			
				(0.032)	(0.020)	(0.003)	(0.038)			
log WWII registrants	0.159***	-0.000	-0.030	-0.090***	0.158***	0.001	-0.028	0.199***	0.005**	-0.007
	(0.015)	(0.002)	(0.020)	(0.025)	(0.015)	(0.002)	(0.020)	(0.019)	(0.002)	(0.024)
1917 volunteering rate	0.087**	0.023***	0.135*	0.081	0.108***	0.023***	0.137*	0.072	0.018***	0.113
	(0.041)	(0.005)	(0.079)	(0.068)	(0.041)	(0.005)	(0.079)	(0.047)	(0.006)	(0.078)
WWI medal	-0.040*	0.005**	0.019	0.008	-0.040*	0.006**	0.023	-0.044*	0.005	0.019
	(0.021)	(0.002)	(0.041)	(0.037)	(0.022)	(0.002)	(0.041)	(0.025)	(0.003)	(0.042)
WWI casualty rate	-0.198	0.048	-0.035	-1.866***	-0.453	0.040	-0.096	0.394	0.149***	0.375
	(0.284)	(0.036)	(0.548)	(0.675)	(0.279)	(0.037)	(0.550)	(0.416)	(0.056)	(0.638)
1940 unemployment rate	-1.505***	0.085**	-0.780	-5.304***	-1.659***	0.080*	-0.970**	0.749	0.332***	0.120
	(0.322)	(0.041)	(0.509)	(0.518)	(0.310)	(0.041)	(0.480)	(0.522)	(0.075)	(0.844)
Urban status 1930	0.187***	0.019***	0.061	0.148***	0.186***	0.018***	0.063	0.118***	0.009**	0.022
	(0.023)	(0.003)	(0.042)	(0.041)	(0.024)	(0.003)	(0.042)	(0.031)	(0.004)	(0.053)
Share Democrats 1896-1928	0.000	-0.000***	-0.000	0.015***	0.002*	-0.000**	0.000	-0.005***	-0.001***	-0.003
	(0.001)	(0.000)	(0.002)	(0.002)	(0.001)	(0.000)	(0.002)	(0.002)	(0.000)	(0.003)
Constant	-5.866***	0.062***	0.372	4.986***	-4.755***	0.090***	0.399*	-7.019***	-0.162***	-0.692
	(0.205)	(0.019)	(0.272)	(0.255)	(0.148)	(0.015)	(0.211)	(0.416)	(0.061)	(0.707)
State F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	2,913	2,240	2,240	2,913	2,913	2,240	2,240	2,913	2,240	2,240
R-squared	0.557	0.654	0.059	0.561	0.536	0.658	0.059	0.391	0.416	0.013
F-test of excluded instrument				86						

Table A6. Results including state fixed effects. Robust standard errors in parentheses. Columns 1-4 report ols estimates. Column 5 displays the first stage results. Columns 6-7 display reduced form results and columns 8-9 finally display second stage results. Columns headed by "Bonds" use log sales of warbonds per capita as outcome. Columns headed by WW2 Vol use share of volunteers in WW2 as outcome. Log other relief per capita is total grants – agricultural grants.* $p < .1$, ** $p < .05$, *** $p < .01$.

Appendix B.

World War II variables

1944 war bond purchases per capita. Value of 1944 war bond purchases from (ICPSR, 2012). We divide by 1940 population (King et al., 2010) and take the natural logarithm.

Share of WW2 volunteers. We divide the number of volunteers in WW2 in the army by the number of army soldiers (draftees + volunteers) in each county (NARA, 2002)

Share of WW2 volunteers in 1942. We divide the number of volunteers in 1942 in the army by the number of army soldiers (draftees + volunteers) in each county in 1942 (NARA, 2002).

Number of WW2 awards by 1000 soldiers. Take the number of army awards in each county and divide by total number of army soldiers (draftees + volunteers) in each county. Multiply with 1000 (NARA, 2002). We winsorize the 1% tail of the distribution.

Log WW2 registrants. Natural logarithm of the total number of army soldiers (draftees + volunteers) in each county (NARA, 2002).

Farmer-Volunteers/Volunteers. The share of volunteers in WW2 that are also farmers. This is coded up in the exact same way for each profession. We assign occupations to soldiers using the DOT codes provided (NARA, 2002).

Farmer-Draftee/Draftees. The share of draftees in WW2 that are also farmers. This is coded up in the exact same way for each profession. We assign occupations to soldiers using the DOT codes provided (NARA, 2002).

World War I variables

Share of WW1 volunteers. We divide the number of volunteers until 1917 and divide it by the number of army soldiers (draftees + volunteers) in each county until 1917 (Provost, 1918)

WW1 Medal. Dummy whether county was home to at least one soldier that was awarded a medal in WW1 (homeofheroes.com)

WW1 Casualty Rate. Number of casualties in a county (Haulsee, 1920) divided by the number of soldiers (Provost, 1918).

New Deal

Log total grants per capita. Natural logarithm of total non-repayable grants (Fishback et al, 2003) divided by total population in 1930 (King et al., 2010).

Log Agricultural Adjustment Administration (AAA) grants per farmer. Natural logarithm of AAA grants (Fishback et al, 2003) divided by total number of farmers in 1930 (King et al., 2010).

Log other grants per capita. Natural logarithm of other grants (total grants – AAA grants) divided by total population in 1930.

Weather

Log drought in 1933-39. National Climatic Data Center provides a panel of 176 climate division for the continental US since 1900. We assign each county to a climate division and count the number of months with severe drought in each year. Severe drought is here defined as having a Palmer Drought Severity Index of -3 or lower. We then continue and aggregate the total number of months with severe drought for the time span of the New Deal (1933-39) and take the natural logarithm of this number.

Other controls

Unemployment rate 1930/1940. We use the 100% census from IPUMS (King et al, 2012) to compute this. We divide the number of unemployed in the respective year by the labor force (total population – # not in labor force).

Average Democratic vote: 1896-1928. We take this from Fishback et al (2003). It is the mean share of votes cast in favor of the democratic party from 1896-1928 in presidential elections.

Urban county: 1930 (dummy). 1 if urban population is greater than 0 in 1930 (King et al, 2012).